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WITH SUPPLEMENT.

No. 3434. SATURDAY, OCTOBER 30, 1926. **Price 1/3**

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It is not that gynaecologists are unsympathetic; we realize only too well how real are the symptoms, whatever their origin, and how powerless we are to deal with them effectively. I am by no means opposed to birth control in general, provided rational methods are employed. Unhappily we have not as yet evolved that ideal technique which would go far to solve many of our present-day problems.

DR. ALFRED A. MASSER (Penistone) writes: A short time ago I had a patient who had suffered from pain in both iliac fossae and some backache for twelve months and insomnia. She was childless and 30 years of age, and was five years married. There was some tenderness over the region of the iliac fossae, and on pelvic examination both ovaries were slightly enlarged and tender. On inquiring into the cause of her sterility I found her husband had been practising "withdrawal" since marriage. After pointing out to both the husband and herself the harmfulness of the method, natural intercourse has since been indulged in. The patient's mentality is now much brighter, the ovaries are normal, and her pains and insomnia have disappeared. I have no doubt that the practice is harmful to both the male and female, in the latter case causing possibly an instability of balance of the endocrine organs.

DR. R. MACDONALD LADELL (Birmingham) writes: I was pleased to see the letter from Dr. Gubbin in your issue of October 2nd, in which he calls attention to the nervous symptoms produced by coitus interruptus. I am certain that his experiences can be paralleled by every practitioner once he has learned to look for the syndrome. It is not only the women who suffer, but their partners, too, are apt to develop a mild anxiety state, accompanied by irritability. It would be interesting to know how many judicial separations owe their origin to quarrelsomeness engendered by lack of sexual harmony. Anxiety states are common, too, in young men and women during the "walking out" or engagement period. Sometimes the anxiety becomes localized around some particular organ, and the patient believes that he is about to fall a victim to phthisis, cancer, or heart disease. Every man in general practice should cultivate a sufficient knowledge of sex psychology to be able to recognize and deal with these cases on common-sense, matter-of-fact lines.

POISONING BY TOBACCO APPLIED TO THE SKIN.

DR. D. S. ROBERTSON (Moukden, China) writes: With reference to notes published recently on poisoning by tobacco applied to the skin, it is interesting to know that Chinese practitioners of the old school use tobacco juice as a means of treatment in cases of abdominal swellings, such as the splenic enlargement of kala-azar. The juice is extracted from the stem of a well-used pipe and rubbed into the skin over the swelling. This causes vomiting and, in some cases purging. The belief is that the swelling may be reduced by such means. Splenic enlargements, by the way, are supposed to be caused by an accumulation of air and blood which has coagulated.

TEMPORARY EXTRUSION OF THE EYEBALL.

DR. T. LINDSAY (Tooting Bec Hospital) writes to report a case of temporary extrusion of the eyeball in an epileptic imbecile woman, aged 41, which occurred suddenly one morning. He says: I found an object like a small tomato of the transparent skinned variety protruding from the right socket, with the eyelids tucked in behind it. There was no pain or tenderness, and I was able to compress the tumour slightly, restoring the eyelids to their usual position. The edges of the lids were thickened and oedematous. On the following morning the eye, apart from a slight purple tint of the sclerotic, was quite as usual. The eye is a blind one, with an opaque white lens, but, apart from that, is of the usual shape and appearance. No fit was reported during the night, and the condition was simply discovered in the morning. I cannot say how it was brought about, but it showed many of the features of a strangulated hernia.

AN IDEAL HOME.

MRS. NAYLOR-DAVIDSON and her husband, overwhelmed by the post-war difficulties of running their many-roomed old house in Uxbridge, with its large kitchen and old-fashioned range, proceeded to build themselves an ideal home for modern conditions a little way out in the country. Mrs. Naylor-Davidson has published a description of this home, illustrated with plans and photographs, under the title "*Over Frays*": *an Original House for Practical People*.[1] Although there may not be a large amount of originality in the actual labour-saving devices embodied in the house, the structure is a compact collection of many things that can make life easy to the harassed housewife. And there was, perhaps, considerable originality displayed in starting with—and, so to say, hanging the house on to—the garage, which is so arranged that it can be converted into a dining room, a smoking room, or a children's playroom. The garage opens out of the drawing room, but means have been taken apparently to avoid the leakage of petrol fumes. A lavatory with a red glass window serves an extra purpose as a "dark room" for photography. The kitchen is evidently regarded as the *chef d'œuvre*, and we have a photograph of Mrs. Naylor-Davidson cooking at the stove. The kitchen is the smallest room in the house, and is really an annexe to the dining room, cut off by sliding doors. The tables are attached to the wall, and supported by swinging brackets. There is a gas cooker and a hot water circulator, for the house is within range of such useful adjuncts as gas, water, and electricity supplies. As there are five openings in this small kitchen and a special flue over the stove the odours of cooking can be rapidly removed. Mrs. Naylor-Davidson adds to her book some chapters on making a garden and an orchard, a few hints to housewives, and an account of the setting in which the house is built. A note at the end informs readers that if they wish to study the subject of building similar houses they can be received at "Over Frays" by appointment for a period not exceeding a quarter of an hour, on payment of a fee of 1 guinea. The book is most attractively got up.

[1] "*Over Frays*": *an Original House for Practical People*. By Clarice H. M. Naylor-Davidson. Uxbridge: Printed privately for the Author; London: J. and E. Bumpus, Ltd. 1926. (9½ × 11½, pp. 67; 32 figures, 7 diagrams, 3 plates. £1 1s.)

PLUMBO-SOLVENT WATERS.

DR. T. D. HARRIES of Aberystwyth sends notes of a simple method for avoiding the dangers of plumbo-solvent water, while not interfering with its natural properties. The addition of lime, chalk, or silicates to a soft water has the effect of destroying the economic and therapeutic values of the water. Dr. Harries says that the Birmingham Corporation has not had very satisfactory results from the addition of lime or chalk to the Rhayader water; and that the expense of chemical methods would be prohibitive, except for the water supplies of rich corporations. Since lead cisterns and cisterns of slate slabs jointed with white lead have been discarded, the only source of contamination left is the lead service pipes. To avoid the danger from water which has stood in these pipes all night, many housekeepers allow a large quantity of water to run to waste the first thing in the morning. The principle of this procedure is right, in Dr. Harries's opinion, but the method wrong, as the waste is unnecessary, and often amounts to as much as twenty gallons. To clear 240 ft. of service pipe it is only necessary to draw off two gallons of water. Dr. Harries suggests that housekeepers should establish a routine practice of emptying the water-closet flushing cistern the first thing in the morning. In this way two gallons of water are withdrawn from the service pipes. The drinking water tap should then be opened for eight or ten seconds, thus allowing about a quart of water to run to waste, and clearing 30 ft. of branch piping. Thereafter the frequent use of domestic taps during the day prevents the possibility of contamination of the water by long standing in the service pipes. If the routine practice of this method were adopted in a town of 10,000 inhabitants, the total loss of water daily would not be more than 5,000 gallons. In observations made on one of the softest and purest waters in the kingdom, Dr. Harries has found that the lead impregnation varied between 0.015 and 0.02 parts in 100,000, so that it would be necessary to drink from one to three and a half gallons of overnight water in order to absorb one thirty-first part of a grain of lead. Consequently Dr. Harries does not believe that there is much chance of lead poisoning under modern conditions of water supply. With his suggestion for emptying the service pipes in the morning the risk is negligible. If any water were found capable of acting on lead pipes to a dangerous extent in six hours, Dr. Harries thinks that the danger might be removed by running the water through a conduit twelve yards in length, containing limestone or marble fragments, before it enters the reservoir. This would reduce the plumbo-solvent action of the water by at least 50 per cent., and, combined with his flushing cistern method, would do away with all risk. At the same time the limestone filter bed would have the disadvantage of diminishing the economic value of the water and render necessary increased expenditure on soap. The limestone bed would be renewed once a year, the disused stone being used for road mending.

LIQUOR OPII SEDATIVUS.

MESSRS. ALLEN AND HANBURYS ask us to state that the morphine content of liquor opii sedativus (Battley) has been increased from 1.5 to 1.8 per cent., so that each fluid drachm now contains 1 grain morphine. The dose has been reduced from 5 to 15 minims to 5 to 10 minims.

1927 MOTOR CARS.

LAST week's issue of the *Autocar* contained a buyers' guide to 1927 model motor cars. The guide consists of an alphabetical list of all the cars which will be on the British market for the coming year, and gives for each car the country of origin, the annual tax, a full specification, the principal measurements, the number of seats, the weight, and the prices, both for the chassis and the complete car.

ERRATUM.

THE paragraph of news relating to Dr. Hermann Brehmer in the JOURNAL of October 9th (p. 669) should have stated that the hundredth anniversary of the birth of Dr. Hermann Brehmer was celebrated on August 14th, the famous specialist in tuberculosis having died in 1889.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 44, 45, 46, 47, 50, and 51 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 48 and 49.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *187*.

British Medical Association.

PROCEEDINGS OF SECTIONS AT THE ANNUAL MEETING, NOTTINGHAM, 1926.

SECTIONS OF NEUROLOGY AND PSYCHOLOGY AND OF OPHTHALMOLOGY.

E. FARQUHAR BUZZARD, M.D., F.R.C.P., in the Chair.

DISCUSSION ON MIGRAINE.

OPENING PAPERS.

I.—EDWIN BRAMWELL, M.D., F.R.C.P.,

Moncrieff-Arnott Professor of Clinical Medicine in the University, and Physician to the Royal Infirmary, Edinburgh.

MIGRAINE has engaged the attention of the physician from very early days. Nor is this surprising when we recall the comparative frequency of the disorder, the temporary disabling effects to which it may give rise, the interesting phenomena which it presents, and the uncertainty which still enshrouds its etiology. The subjective symptoms of the classical migraine attack are well known. They have been portrayed in graphic language by many skilled observers from personal experience. A great variety of causes are recognized which serve to determine the paroxysms in individual cases, and yet we must still admit our ignorance as to the nature of the disorder and the mode of action of these varied exciting factors. A discussion such as this serves a useful purpose, since it enables us to refer to additions to knowledge which may have a bearing upon unsolved problems, to review recent suggestions, and to picture where we stand. Etiological considerations are of special interest, and to these more particularly I shall devote my remarks. It is, however, impossible in the time at my disposal to deal adequately with the many views which have been advanced in this connexion. I consequently propose, after some preliminary references to certain observations of etiological significance, to submit for your consideration and criticism the explanation which appears to me to be in closest accord with the facts, believing that by so doing I shall best serve the interests of this discussion.

Nomenclature.

The nomenclature of medicine is not always all that is to be desired and is apt at times to be misleading. A designation often comes into general usage because it appears for the time being to be the best available. Thus it is with migraine, for, while the term depicts a most characteristic and distressing symptom of many migraine attacks, I may remind you that the paroxysm is not always accompanied by headache, and that the headache is by no means always unilateral. Exception may also be taken to the synonyms "bilious headache" and "sick headache," for sickness and vomiting are not necessary accompaniments, and these epithets tend to perpetuate erroneous etiological conceptions.

Idiopathic and Symptomatic Migraine.

The desirability of differentiating between a true or idiopathic and a symptomatic migraine has been repeatedly advocated, and I would commend this distinction to your consideration, for it is of undoubted value in diagnosis. Paroxysmal headaches, you will recall, are sometimes met with in cases of brain tumour, in cirrhosis of the kidney, and exceptionally as a late syphilitic manifestation. These headaches, to which the term "symptomatic migraine" is applicable, may be accompanied by vomiting, and the pain may be unilateral. A diagnosis from true migraine may, indeed, be difficult apart from the detection of the underlying process. Hence, when paroxysmal periodic headaches develop in later life, and particularly when there is no evidence of hereditary transmission, the probability that the headache is symptomatic, in the sense that it may be secondary to one of the organic conditions above referred to, should always be borne in mind.

Symptomatology.

The symptoms of the classical migraine attack are so well known, to many from personal experience, that to describe them would serve no useful purpose. Liveing,[1] in his work upon migraine, which was published fifty years ago and is still the classic upon the subject, recognizes four types: first, simple hemicrania in which unilateral headache is the striking feature; secondly, sick headache characterized by vomiting, which is often accompanied by a nausea resembling sea-sickness; thirdly, blind headache, so called from the visual phenomena and remarkable obscuration of vision which accompany it; and, fourthly, cases presenting manifestations which indicate "a wider implication of the sensorium, affecting the general sensibility of the extremities, and especially the sense of touch in finger-tips, lips, and tongue in varying degree; sometimes impairing the faculty of expression, producing a striking form of disordered speech, sometimes a confusion of ideas and temporary impairment of memory." This somewhat arbitrary classification is useful since it emphasizes certain prominent features which may dominate the picture in individual cases.

The classical migraine attack comprises an aura which is characterized by visual and it may be other phenomena indicative both of local and general disturbance of cerebral function, headache which is typically frontal and predominantly unilateral, nausea and vomiting. But while this is so I may remind you that headache often constitutes the only striking symptom of the paroxysm; that exceptionally—and this applies especially to childhood—attacks of vomiting may be the only manifestation; that occasionally visual disturbance, aphasia, or paraesthesia may be unaccompanied by either of these symptoms, and that anomalous attacks are met with, undoubtedly migrainous in nature, which are characterized by a transient hemiplegia, by pain which closely simulates a true neuralgia, or by paroxysms of vertigo resembling Ménière's disease. Cases are reported in which migraine has so closely simulated an abdominal condition that a laparotomy has been carried out. Again, I have met with a case in which the gastric crises of tabes were attributed to migraine, the associated organic disease being unsuspected.

Epilepsy and Migraine Compared and Contrasted.

A relationship between epilepsy and migraine is repeatedly referred to in the literature. These disorders, which are usually classed with the neuroses, present many points in common. Thus both are characterized by paroxysms which tend to recur with periodicity, in both the condition as a rule first manifests itself in early life, and in both there is often a history of familial neuropathic predisposition or direct transmission. Again, in migraine as in epilepsy the attack is often ushered in by an aura, while the paroxysm of migraine may be accompanied by temporary disturbance of sensation, of movement, and of speech, and by some degree of mental confusion. Further, in migraine as in epilepsy a cumulative effect may be observed—that is to say, that an unduly long period of freedom may be followed by an unusually severe attack. It is also of interest to note that, as is the case with epilepsy, attacks of migraine in women are apt to occur about the time of the monthly period, and that they often, though not invariably, cease during pregnancy when menstruation is in abeyance. Then I may remind you that in some cases migraine appears to be replaced by epilepsy, while in others there is an apparent substitution of migraine for epilepsy. Again, there are cases described—and I have met with more than one instance in point—in which anomalous attacks of migraine and atypical epileptic attacks so closely resembled each other as to be almost, if not quite, indistinguishable.

But while migraine and epilepsy present many points in common, the resemblance is superficial and certainly not such as to warrant the assumption of an intimate relationship. The two disorders are, indeed, rarely met with in combination, and a history of epilepsy in a

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correct—to the fact that from the time of the birth of the second child, though not before, she had been in a constant state of anxiety amounting to a dread lest she should again become pregnant.

Dr. F. G. Crookshank,[4] who has recently emphasized the mental factor in the etiology of migraine, believes that a certain "organ inferiority" is generally obvious. "The defect, as in the case of imbalance (eye-strain), may be an actual cause of cerebral exhaustion by reason of the efforts made to overcome the resulting disability"; or "organ defect may become the excuse, seized upon by the psyche for the maintenance of a persistent psychological attitude." Again Crookshank writes:

"If the present psychological state of anyone who seeks relief from migraine be investigated, it will be found that, *although the patient himself will at first deny the fact*, yet always the mental content in the neighbourhood of the paroxysms, or during their persistence, is one that, in Adler's phrase, is coloured by repressed 'rage and humiliation.' The sufferer will protest that he feels no rage or humiliation, but, if pressed or moved to speak freely, will admit annoying circumstances that would perhaps provoke feelings of 'rage and humiliation' in anyone endowed with less control and of a coarser nature than himself."

I would have you especially note in passing that, whether the "organ inferiority" postulated by Crookshank results in brain exhaustion or emotional disturbance, these effects are no doubt associated with endocrine disturbance, a matter to which I shall presently refer. The following case is of interest in relation to these observations.

The patient, a man past middle age, who came of a migrainous family on the paternal side, had had but one attack of migraine in the course of his life. The paroxysm, which occurred when he was in the early thirties, was characterized by a typical aura and slight unilateral frontal headache. Upon inquiry it transpired that on the previous day the patient had been both disappointed and annoyed, since he had been unsuccessful in obtaining an appointment after having been given to understand that his chances amounted to a practical certainty.

But if, in an individual who is predisposed by heredity, so many factors of very different kinds may induce a paroxysm, the question arises, In what way do they act? Since they all produce similar effects, is it not a reasonable assumption that they must act through a common mechanism? Our inquiries must consequently be directed to the mechanism in question, and to the manner in which these numerous factors act upon it.

The Symptoms of the Migraine Attack a Consequence of Vascular Disturbance.

Let us next consider the manner in which the symptoms of the migraine attack are ultimately determined. Evidence of vascular disturbance is often observed during the paroxysm. Thus in the prodromal stage pallor of the face, which may be unilateral, is sometimes referred to, while later the face may be flushed. Again, the temporal artery is often described as hard and contracted. An alteration in the calibre of the retinal arteries—sometimes engorgement, exceptionally contraction—has been noted in some of those cases which have been examined with the ophthalmoscope during an attack. Further, the headache, which tends to come on insidiously and gradually increases in intensity, is often—I think I may say usually—described as throbbing in character, and may be alleviated by pressure on the common carotid artery. These observations suggest that similar changes may perhaps also occur in the intracranial vessels, and that the paroxysm may be a consequence of arterial spasm or other disturbance in the intracranial circulation. Indeed, the strong probabilities would appear to be that some of the phenomena—the disorders of speech, for example, and the unilateral sensory and motor symptoms, which are exceptionally observed it is true—are directly produced by a localized spasm of the cerebral arteries, and a consequent interference with the blood supply. The vascular view receives some support from the observations that migraine has been met with in Raynaud's disease, that isolated instances are recorded by Thomas[5] and others in which the hemianopic and other cerebral symptoms have eventually become permanent, and that in a case reported by Oppenheim[6] the paralytic symptoms were due to thrombosis of the internal carotid artery. It is of interest, too, in this connexion to recall the recurring transient hemiplegias and aphasias observed in later life in the subjects of arterio-sclerosis, which are, as a rule, premonitions of a permanent arterial occlusion, and which are commonly attributed to arterial spasm. I may say, too, that I have personally observed cases of migraine in which the attacks have become aggravated with the development of an arterio-sclerosis.

The vascular view also helps to explain the occurrence of symptomatic migraine in interstitial nephritis and as a late syphilitic manifestation, for it may well be that there are here associated changes in the intracranial arteries. J. Herbert Fisher[8] holds that the visual phenomena can only be accounted for by a lesion in the chiasmal region, while others have attributed some of the symptoms to changes in the retina itself. The admission of these possibilities in no way negatives the vascular view. But what of the headache, the origin of which, to quote the words of Hurst, "remains a complete mystery"? May it not also be explained on a vascular basis? The headache, it will be generally admitted, must be referable to the meninges, for the brain substance itself is insensitive. I would suggest that it may be due to the re-establishment of the normal circulation following a spasm, not of the cerebral, but of the meningeal arteries. Some of you have, no doubt, experienced the intense throbbing pain which comes on gradually and may persist for a long time after the gum has been frozen for the removal of a tooth, and you will recall the pain which is experienced if a hand benumbed with cold is plunged into hot water. I submit that the pain of the migraine headache is similar in character and may be analogous as regards the manner in which it is produced; in other words, that it is due either to the gradual re-establishment of the circulation following a spasm of the meningeal arteries or to their subsequent engorgement. This view, I think, receives further support from the fact that a distinct period of time often elapses between the disappearance of the prodromal symptoms and the commencement of the subsequent headache, which develops gradually and is typically throbbing in character.

Objection has been taken to the vascular theory on the ground that it will not explain the cases of so-called ophthalmoplegic migraine. I am inclined, however, to agree with Oppenheim,[7] who, after referring to cases of the kind in which gross changes have been found, remarks:

"The most plausible view seems to me to be the one based on Charcot's opinion, viz., that periodic oculo-motor paralysis is allied to hemicrania, and like it presumably due to vascular processes. The vascular spasm inhibits the flow of blood to the nerves and thus produces the paralysis."

I would therefore submit for your consideration the suggestion that: The symptoms of the migraine attack are to be accounted for by localized spasm and subsequent relaxation of the meningeal or cerebral arteries, or of both in varying degree, the prodromal symptoms (when these occur) resulting from spasm of the cerebral arteries, while the headache is attributable to re-establishment of the circulation in, and engorgement of, the meningeal arteries.

The Mode of Action of the Obvious Exciting Factors which are Responsible for the Attack.

Evidence has been submitted which would appear to indicate that the migraine attack may be explained by a spasm of the meningeal and cerebral arteries; a number of factors have been referred to which may excite a paroxysm, and it has been suggested that these must produce their effects by acting upon a common mechanism. The question consequently arises, How are these vascular changes brought about? Although it is true that there is no proof that the cerebral arteries are regulated by a vasomotor mechanism similar to that which regulates the arterial system in other parts of the body, some of the phenomena observed during the migraine attack—the altered colour of the face, the unilateral hyperidrosis, and the contraction of the temporal artery which is often referred to—are clearly due to a disturbance of the sympathetic. Consequently it may be assumed with some degree of probability that changes in the meningeal and cerebral arteries may be brought about in a similar manner. But how are these changes actually initiated?

The suggestion that the migraine attack is directly determined by some toxic influence has long been popular. In the days when the humoral origin of disease was

migrainous family is most unusual. Again, it is to be borne in mind that the slow spread of the migrainous aura suggests a different mechanism from the aura of epilepsy, that in the former disease mental deterioration is not observed, and that migraine, unlike epilepsy, tends to disappear in later life. Both disorders are, it is to be remembered, comparatively frequent. Consequently when migraine and epilepsy occur in the same patient or in the same family due allowance must be made for the possibility of coincidence.

Incidence in Relation to Age, Sex, and Heredity.

Migraine is a common condition. Some six weeks ago I addressed a short questionary to a class of senior medical students. The replies indicated that 15, or approximately 12 per cent., of those present suffered or had suffered from the disorder.

The approximate *age incidence* is expressed in the following table, in which I have tabulated the age of onset of 54 personally observed cases of true migraine met with in private consulting practice. A precise history as to the age of onset is often difficult to obtain, and I am unable to differentiate the age of onset sharply in relation to the first two decades. I find, for instance, that many patients used the expressions "in childhood," "in boyhood," "in girlhood," "during my school days," "as long as I can remember," etc. In 7 additional cases I have no definite note, and these are not included in this table. I have tabulated in a parallel column the age of onset in 49 cases reported by Dr. Liveing.

The Age of Onset of Migraine.

	The Author's Cases.	Dr. Liveing's Cases.	Total.
1 to 10 years	43	16	78
10 to 20 ,, ...		19	
20 to 30 ,, ...	8	12	20
Over 30 ,, ...	3	2	5
Totals	54	49	103

These figures indicate that in three-quarters of the cases true migraine first manifests itself before the age of 20, and that it is most exceptional for the onset to be delayed beyond the thirtieth year. Liveing, I may remind you, was of opinion that there are three incidents which play a prominent role in determining the onset of migraine—namely, the period of the second dentition, the period of puberty, and "the strain upon the nervous system which is apt to precede and attend the entrance on the more serious business of life."

As regards sex, females suffer more often than males. Thus, among my 61 cases there were 43 women and 18 men—a proportion of approximately 7 to 3. It is of interest to note that the female preponderance in Dr. Liveing's series was not nearly so pronounced, for of his cases 29 were females and 24 males—a proportion of 5 to 4.

Heredity undoubtedly plays a very striking role in the etiology of migraine. A neuropathic heredity is observed in the great majority of cases, according to Möbius[2] in 90 per cent. Still more striking is the history of *direct transmission*. Thus, among my 61 cases of true migraine there were 23 in which one or other parent had suffered from periodic headaches, and 7 additional cases in which one or more brother or sister had been subject to migraine although the parents had escaped. Thus in 30 of the 61 cases there was a familial history of migraine. Liveing's figures are almost precisely similar, for, referring to his series, he remarks, "I find 26 out of 53, or just half, where migraine was stated to be a family complaint." Charles K. Mills has reported a family in which migraine could be traced through five generations.

Transmission through the mother is more common than through the father. Thus, among my 61 cases, in 14 the mother and in 9 the father had been subject to migraine. This preponderance is still more in evidence among the 15 medical students above referred to, for of these, in 8 the mother, in 1 the father, and in 1 both parents, had been subject to periodic headache.

These considerations demonstrate that migraine is a disorder which commences during the period of active physical and mental development, which affects females more often than males, which occurs notably in families with a neuropathic taint, and which is directly transmitted, most often through the mother, in about half the cases. The frequency with which various neuroses are met with in migrainous families would appear to indicate a common predisposition which we are perhaps justified in describing as an inherited instability of the nervous system. But the constancy with which migraine itself is directly transmitted can only be explained on the further assumption that the individual who suffers must be predisposed by some additional factor or factors which render him peculiarly susceptible to this disorder.

The Obvious Exciting Causes of the Migraine Attack.

An attack of migraine can often be attributed to a definite exciting cause These causes are numerous and vary in individual cases. Among them may be mentioned intense mental application, mental fatigue, physical exhaustion, the menstrual period, eye-strain, fasting or prolonged abstention from food, the excessive consumption of various articles of diet. alcohol, tobacco, a stuffy room, thunder in the air, exposure to intense cold, etc. Prolonged anxiety and worry are potent causes in producing migraine, and a mental factor without doubt sometimes determines an attack. Among these various exciting causes there are two, I think, which call for special mention at the present time. I refer to eye-strain, the importance of which has recently been insisted on by Hurst, and the psychological factor, which has not perhaps received the attention it deserves.

Eye-strain has from time to time been suggested as a potent cause of migraine. According to Hurst,[3] who revived this view in his Savill Lecture two years ago, eye-strain is of "fundamental importance." Hurst states that during the past five years, since all his cases of migraine have been most thoroughly investigated from the ophthalmic standpoint and the smallest error of refraction corrected, his views regarding the prognosis in migraine have entirely altered.

"Personally," he writes, "I have never yet seen a case in which eye-strain was not present, and I have only seen two in which its correction did not either cure the patient or lead to very considerable improvement" . . . "the reason why the importance of the ocular factor is not more widely accepted is that few oculists trouble to give the attention to a patient with migraine that he deserves."

Although I am satisfied that eye-strain is sometimes an important exciting factor, and that the correction of a refractive error occasionally effects a cure, this is, in my experience, quite exceptional. On the other hand, it is to be remembered that in a large proportion of the cases of migraine seen by the physician the patient has already been examined by an ophthalmologist and any refractive error presumably corrected. The onus of proof in this matter consequently rests with the ophthalmologist, and we shall be interested to hear his views.

Mental factors may play an important role in determining migraine in an individual who is predisposed. The following case is a good illustration.

A woman of somewhat nervous temperament, whose father as also a brother and two sisters had suffered from periodic headaches, married a soldier home on leave from France in January, 1916. Some three or four months later—at a time when her mother, with whom she lived, was ill, her husband in the fighting line, and she overworked and obtaining little sleep—the first migraine attack occurred. The paroxysm was characterized by visual phenomena, headache, etc. A second attack occurred a few months later, and gradually the paroxysms became more frequent. Her first child was born in February, 1918. During the whole period of her pregnancy she was free from attacks, but two or three months after the birth of the child the attacks recurred and continued up to February, 1919, when her husband was demobilized. From that time the attacks ceased and there was no recurrence until March, 1922, two months after the birth of her second child, since which time they have been very frequent and distressing.

The facts are striking and their interpretation is interesting, for the patient attributed the recurrence of her attacks—and I think her explanation was almost certainly

the mental attitude of the patient studied, and anxiety, should this exist, where possible relieved. Of late peptone therapy has been attended with promising temporary results. Luminal, bromides, and the nitrites are often of much value, and I would particularly advocate the value of the first, which I usually prescribe in a dose of 1½ grains at bedtime. But these medicinal agents must be administered systematically over long periods if they are to be of real benefit.

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MIGRAINE FROM THE OPHTHALMIC STANDPOINT.

FROM the standpoint of the ophthalmologist the most interesting features of migraine are the visual symptoms so frequently associated with attacks, and its relation to certain ocular defects.

One of the most characteristic features of migraine is the occurrence, generally at the onset of a paroxysm, of some kind of subjective sensory disturbance. Although many people suffer from migrainous headaches without any such prodromal symptoms, it is probable that they occur at some time or other in the majority of cases. Visual disturbances are by far the commonest of these subjective sensory phenomena. Their frequency has been variously estimated by different writers. Thus Liveing[1] found that of 60 cases of migraine 37 had scotomata; Gowers[2] estimated that visual symptoms occurred in 50 per cent. of cases; while Möbius[3] noted the occurrence of visual aurae in only 14 out of 130 cases. Jeliffe and White[4] state that close questioning reveals the fact that at some time in the course of the disease the majority of patients have had visual symptoms, and that many people who at first deny having had such symptoms will, when shown Airy's drawings of scintillating scotomata, recollect having seen such appearances. I think those of us who have had personal experience of the visual symptoms of migraine are likely to recognize the imperfect descriptions given by patients more easily than those who have not had this advantage. The symptoms are really not easy to describe, and complaints of "dizziness," "spots before the eyes," "blurring," or "dazzling" often prove on close questioning to refer to typical migrainous phenomena. Another thing that tends to prevent recognition of these symptoms is the widespread popular belief that anything that can be described as "spots before the eyes" means only "liverishness," and is not worth talking about.

A very clear description of the visual aura of migraine, based upon personal experience, was given in 1868 by Dr. Hubert Airy,[5] and illustrated by coloured drawings. In 1895 Gowers[6] devoted the greater part of his Bowman Lecture on subjective visual sensations to discussion of the visual spectra of migraine, using as illustrations the drawings made by Airy and other sufferers. Reproductions of some of these drawings were published in the *Transactions* of the Ophthalmological Society, and I recommend all who have not had personal experience to study these reproductions if they wish to get some idea of what many migrainous patients see. In looking at these pictures one should remember to keep the eyes directed to the point of fixation and to bear in mind that the luminosity of the bright lines should be continually changing, so producing a scintillating effect. The subjective visual sensations are very varied; but one feature is, I believe, always present—a loss of sight in part of the field of greater or less extent. Very commonly there are also subjective sensations of light (migrainous spectra).

The scotoma may be positive or negative, may develop suddenly in its full extent, or may start at a small spot and gradually spread. The spectra, as Gowers pointed out, present as their most important feature a zigzag or angled character, well known in its common curved form as the fortification spectrum. The angled spectrum is associated with a scotoma, generally bounded by the luminous zigzag or definitely related to it. Thus, in the common form of expanding spectrum the part of the field over which the spectrum has passed remains blind for a short time, so that there is a curved (expanding) scotoma bounded peripherally by the bright zigzag line. This relation of the scotoma to the spectrum is, however, by no means constant. In some cases the scotoma develops before the occurrence of subjective sensations of light. In such cases the spectrum may take the form of a stationary or moving angled sphere appearing in the scotomatous part of the field. In most cases the scotoma is limited to one half-field, left or right, and complete homonymous hemianopia is not rare; but such limitation to the fields on one side of the vertical line is by no means invariable. Sometimes a scotoma, with or without associated spectrum, extends across the middle line of the field. Loss of the upper or lower half of the field in both eyes may occur. Rarely, there is a central scotoma, and cases are recorded of transient total loss of vision; but as a rule the fixation point is not involved. The scotomata are nearly always binocular, homonymous, and identical in extent in the two eyes. In a very few cases the scotoma is monocular. For a long time I was doubtful of the occurrence of monocular scotomata. Patients often say that the defect is in one eye, because a defect in one half of the field of both eyes is thought to be due to a fault in the eye on the side of the defect; but a few reliable observers have stated that one eye only may be affected. A well known neurologist has assured me that he has had a monocular scotoma.

The scotomata of migraine usually last but a short time, seldom more than half an hour, though cases of persistent homonymous hemianopia have been recorded by Thomas,[7] Gowers,[8] Ormond,[9] Gordon Holmes,[10] and others.

Visual disturbances are sometimes accompanied by other prodromal symptoms—for example, paraesthesia and aphasia. Usually the type of prodromal symptom is constant in any one individual, but sometimes different symptoms occur in different attacks, and there may be a tendency in the course of years to a gradual change in the type of aura. I know a member of our profession who has suffered at different periods of his life from an extraordinary variety of symptoms, affecting at one time or another nearly all the special senses. When I last heard him speak of his symptoms he described a highly elaborated visual hallucination, which was then the constant precursor of his attacks. With reference to the association of aphasia with visual disturbances, Gowers[11] and others have noted that when aphasia accompanies scotomata the latter are right-sided. One would expect the reverse to be true in left-handed persons, but I know of no observations to this effect.

A discussion of migraine from the ophthalmic point of view would be incomplete without some reference to ophthalmoplegic migraine. Cases of recurrent ocular palsy following attacks of headache of migrainous character were described by Gübler[12] in 1860 and by Saundby[13] in 1882. The first detailed study of the condition is contained in a paper by Möbius[14] published in 1884. The name "ophthalmoplegic migraine" was first suggested by Charcot.[15] In these cases the headache is usually very severe, and lasts longer than in ordinary migraine, generally for several days. As the headache passes off an ocular palsy develops, becoming complete in a few hours. In the majority of cases the third nerve is affected; in a few cases the fourth or sixth nerve is involved. The paralysis persists for a variable period, from a few days to several months, and passes off gradually. Attacks occur at long intervals. With recurrent attacks there is a tendency for the paresis to pass off more slowly and for recovery to be incomplete. Many patients have suffered from ordinary

generally accepted, the paroxysm was attributed to a superfluity of bile, and the vomiting which so often occurs towards the end of the attack was regarded as an attempt to rid the body of this noxious humour. Purging was consequently advised as the appropriate treatment. Of recent years migraine has been attributed to disturbance of the hepatic function and intestinal stasis, but I venture to think that there is no evidence to indicate that these conditions play an important role. There has been of late a growing tendency to attach importance to disorders of metabolism and endocrine disturbance in this connexion. The relation of migraine to the function of menstruation is here suggestive. You will recall that not infrequently migraine first makes its appearance about the time of puberty, that there is a tendency for the attacks in some cases to occur with great regularity at the menstrual periods, that the paroxysms are rarely met with during pregnancy, and that they often disappear in later life, although, in my experience, they are not infrequently aggravated during the active changes which accompany the menopause. Again, when we consider the various factors which in individual cases are obviously responsible for exciting the paroxysm, is it not a fact that some of these—physical exhaustion, mental fatigue, and emotion, for example—undoubtedly influence the endocrine secretions, while in addition some of the phenomena observed during the attack are such as might be determined by endocrine disturbance? Although I have had no personal opportunity of observing cases of migraine in the initial stages of the attack, I may remind you that a slow pulse, a low blood pressure, and yawning are referred to as occurring during the premonitory period, that Timme speaks of a low blood sugar and a lowered alkaline reserve, and that polyuria is not infrequent. Some of these observations are undoubtedly suggestive, although they require corroboration and amplification. At the same time it appears not unreasonable to suppose that the obvious exciting factors, or some of those responsible for the determination of the migraine paroxysm, may achieve this result by acting upon the endocrine glands and sympathetic nervous system.

Further Etiological Considerations.

But even if it be admitted that the symptoms of the migraine attack are due to vascular changes, and that these are determined in an individual who is predisposed by a variety of factors which act upon the endocrine glands and sympathetic nervous system, the localization of the process still calls for explanation. Why, for instance, should the headache be so often situated in the fore part of the head, why should it be so often unilateral, and why should it in some cases—a minority it is true—be so consistently referred to the same side of the head? In this connexion I would remind you that when several members of a family suffer from migraine the features of the attack often show a close correspondence. Had time permitted I might have cited several instances in point. These observations suggest, do they not, the presence of some factor which is responsible for the localization of the disturbance? May it be that some transmitted anatomical peculiarity constitutes the hereditary predisposing factor? But have any anatomical changes been observed which can be regarded as of etiological significance? Some twenty-five years ago it was suggested by Spitzer[9] that the migraine attack might be called forth by a temporary closure of the foramen of Monro, and that a relative stenosis of the foramen was the essential predisposing factor in migraine. Again, it has been argued by Auerbach[10] that the predisposition to migraine is to be found in a relative disparity between the size of the brain and the cranial capacity. I know, however, of no convincing anatomical evidence in support of these views. Attention has of late been directed to the pituitary gland in relation to migraine. Timme,[11] who has especially advocated this relationship, refers to quite a number of factors which are admitted to result in pituitary hyperactivity and which he believes produce at the same time temporary enlargement of the gland. According to Timme, an unusually small or enclosed sella is the transmitted hereditary factor. When the sella is too small to accommodate the enlarging gland he believes that the surrounding structures are pressed on and that erosion of the bony capsule may occur. The cessation of the paroxysms in later life are, according to this view, to be accounted for by the accommodative enlargement of the sella turcica and the diminished activity of the gland. J. Herbert Fisher,[8] who also attributes the migraine attack to temporary enlargement of the pituitary, bases his contention upon his belief that there is only one region, and that the interpeduncular space, where a lesion could produce all the variations of the migraine scotoma. But is there any actual anatomical evidence in support of these views? Timme writes as follows in support of his contention:

> "Deyl at a Paris International Congress a few years ago reported several cases of migraine in which the *post mortem* showed a unilateral pressure exerted by the enlarged hypophysis on the cavernous sinus. I myself have among my roentgenograms four that show a very marked unilateral erosion of the clinoids in patients suffering from migraine. About ten years ago Plavec confirmed Deyl's findings."

Obviously these observations, if corroborated, are of much importance. Indeed, it would appear to be not improbable that some transmitted anatomical peculiarity may constitute the essential factor which determines migraine in an individual who is predisposed by a general neuropathic heredity.

I may summarize these suggestions in the following words. Migraine is met with in individuals who are almost always predisposed by a neuropathic heredity, but in whom some additional factor or factors must be assumed to account for the frequency of direct transmission and the special features of the disorder. The symptoms of the migraine attack may be explained by assuming that there is a localized spasm of the cerebral arteries (accounting for the prodromal symptoms where these exist) or a spasm of the meningeal arteries, with, it may be, subsequent engorgement (accounting for the headache), or of both in varying degree. A variety of obvious exciting factors, both physical and mental, may bring about an attack. These must presumably act through a common mechanism in order to produce a common effect. Phenomena often observed during the attack indicate a disturbance of the sympathetic system, and although there is no proof of the regulation of the intracranial circulation by a vasomotor system, it would appear not improbable that in migraine there may be accompanying changes in the intracranial circulation, and that they may be produced in a similar manner. There is suggestive evidence which would associate migraine with disordered function of the endocrine glands, while, further, some of the most potent obvious exciting factors of the attack—physical exhaustion, mental fatigue, emotion—admittedly influence the endocrine secretions. There is some reason for believing—although it is true there is no definite proof—that a transmitted structural peculiarity may predispose to migraine and determine the special nature and localization of the symptoms.

Therapeutic Considerations.

The treatment of every case of migraine constitutes a distinct problem. Migraine is one of those disorders in which a thorough inquiry into the history is a necessary preliminary if the best therapeutic results are to be obtained. There are, I am satisfied, few cases which so well repay the time devoted to their investigation from the therapeutic standpoint. The first essential in treatment consists of necessity in a careful review of the patient's daily routine and the correction of any apparent exciting factors. Often the patient will mention incidents which he has found by experience will precipitate an attack, while the physician may detect exciting factors to which the patient has attached little importance or which he has obviously repressed. All such factors, whether physical, mental, or dietetic, must be eliminated so far as circumstances permit. Among general measures to which special importance is to be attached are the avoidance of bodily fatigue and brain fag. The patient of sedentary habits must take more exercise and spend more time out of doors. Again, the advisability of avoiding long intervals between meals is to be remembered, and, needless to say, the refraction should be very carefully examined by an expert in every case, and any error, however slight, corrected. The importance of psychical factors must be kept in mind,

of the migrainous population. Ocular defects are, however, so generally recognized as causes of headache that it is probable that the majority of patients suffering from persistent headaches do sooner or later get their eyes examined. I think all my ophthalmic colleagues will agree with me that errors of refraction are found in a large proportion of the sufferers from migraine whom we see. The errors are usually slight, the commonest being low degrees of hypermetropic astigmatism, often with oblique axes, or against the rule. Slight degrees of heterophoria are also common.

It is not easy to ascertain what relief, if any, patients obtain from correction of their errors. Even though we ask them to report, only a very small proportion do so. But we do know that many patients derive much benefit and that some obtain complete relief. If I find a definite error of refraction I feel I can confidently promise that some relief, possibly very great relief, will be obtained by wearing glasses. Very careful estimation of the errors and accurate fitting of glasses are, of course, essential. It is perhaps not altogether unnecessary to stress these points, for patients are apt to object to the cost. But inaccurate and ill fitting glasses are as likely as not to aggravate the disorder and discredit ophthalmic treatment. If glasses are to be given a fair chance they must be worn constantly.

If we accept the view that many factors may play a part in the etiology of migraine, it follows that very exhaustive examination of the patients is advisable. The physician and neurologist should work in close association, not only with the ophthalmic surgeon, but with the rhinologist, dental surgeon, pathologist, biochemist, psychologist, and other specialists. I venture to suggest that only by well organized team work is it possible to discover the many abnormalities of structure or function which may be in some degree responsible for the symptoms of migraine; and further, that such team work is desirable in order to correct any tendency for specialists unduly to stress the importance of defects found in the organs in which they are most interested.

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GENERAL DISCUSSION.

Dr. WALTER TIMME (New York) expressed his thanks and appreciation at being invited to discuss so interesting a subject as migraine. Professor Bramwell's paper seemed to him to be of much interest, and his exposition of the pathogenesis of the type of migraine chosen by him quite new and probably true. The idea of a latent or premonitory period during which the contraction of the arteries took place, followed by their intermittent resumption of function, accompanied by the throbbing pain of the migrainous attack, seemed to be a simple and adequate explanation. Dr. Timme thought that migraine was a name which covered as many conditions possibly as "cough." Personally, he himself was subject to two kinds, distinctive in character—one superinduced by eye-strain, with an occipital throbbing pain, lasting for a few hours; and the other produced by mental "fatigue" or moderate fasting, with a severe intratemporal pain, either unilateral or bilateral, which lasted for one or several days. He believed that there were quite a few types other than these, and he had seen them in his patients. One of these types, however—the intratemporal, either unilateral or bilateral—was the one of greater interest to him, and that which he would wish to discuss. In this migrainous attack the patient complained of pain radiating from the intratemporal region towards either or both temples, to the vertex, or to the mid-orbital region. The nature of the pain was described by the patient as a "fullness" within the skull, of throbbing or bursting or corkscrew character, as of something trying to get out, quite different from the band-like type of pressure about the head of the neurasthenic. If the patient were examined closely it was found that the veins of the fundus of the affected side—or both if the headache was bilateral—were markedly distended. Frequently vision was disturbed, ptosis might supervene, a bitemporal and occasionally a homonymous hemianopsia occurred, and diplopia and strabismus took place. In certain rare cases a trigeminal neuralgia might arise in addition. Just before such migrainous attacks began the patient might have an inordinate sense of well-being and a lightness of the head which he soon recognized as premonitory. Frequently a craving for sweets was prodromal. The blood sugar at this time was found relatively low for the patient under observation. Soon the headache arose and the attack was on. During the attack, or just before it ended, polyuria was a frequent symptom. Patients with these attacks at very frequent intervals in their youth grew extremely fast in height—one of the speaker's patients increased 8 inches in one year. Later on in life many such attacks were synchronous with the production of a mild acromegaly. The symptom-complex in these migrainous attacks led him to suspect the pituitary body as the seat of the disturbance. Indeed, the close anatomical relations of this gland to the cavernous sinus laterally on either side with its contained cranial nerves—the third, fourth, ophthalmic division of the fifth, and sixth—as well as the superimposition of the optic chiasm and the slightly more lateral situation of the Gasserian ganglion, might well point to enlargement of the pituitary as the causal factor of the headache with its visual and optic disturbances. When they further recognized that the usual causes for these intratemporal headaches were fatigue, both mental and physical, fasting, sexual excesses, intensive carbohydrate feeding, menstruation, and that they began in that period of life when genital development reached its maturity, the implication of the pituitary became even more probable. If they examined with x rays the sella turcica of these sufferers the evidence became quite complete, for invariably the films showed erosion of the cavity, either of the anterior or the posterior clinoids—usually the latter—evidences of enlargement of the cavity itself (facets), and occasionally even a complete break through the cavity walls into the sphenoidal sinus, or into the general cranial cavity itself. Dr. Timme had a number of such examples in his possession. The enlargement of the pituitary gland which produced these erosions and the concomitant symptoms was probably due to a demand upon it for hyperactivity to compensate for various types of fatigue states in which blood sugar was relatively reduced and blood pressure lowered. They knew that the pituitary gland, as well as the thyroid and adrenals, responded by hyperactivity to similar demands. Furthermore, to complete the evidence, Deyl and Plavec, as Professor Bramwell had said, had reported *post-mortem* evidences of enlarged pituitary glands impinging upon the cavernous sinus and oculomotor nerves in two cases of long-standing and intense migraine. He believed that there existed a group or class of sufferers predestined to these headaches—a class determined by a congenitally small and enclosed sella turcica, and not necessarily by a "neurotic" make-up. Such a class might have other stigmata—such as a small cardio-vascular system, small genitals, a small glandular system generally—with exception of the lymphoid group consisting of tonsils, thymus, liver, spleen, and Peyer's patches, all of which were hypertrophied. This was a group of which, in America, they saw many examples—the status hypoplasticus—or, as

migraine for years before the first ophthalmoplegic attack, and many suffer from simple migraine in the intervals between the paralytic attacks. In some cases there is a family history of migraine.

The explanation of the ophthalmic symptoms presents a baffling problem. It seems impossible to avoid the conclusion that different parts of the visual apparatus are affected in different individuals. The homonymous and identical bilateral scotoma, with or without spectrum, indicates, of course, a change occurring above the chiasma in the visual tract or centres of one side. The common form of scotoma, starting as a small defect close to the point of fixation and slowly extending towards the periphery, with its advancing margin marked by a bright zig-zag scintillating line, suggests a change occurring in the visual cortex, starting at a spot and gradually spreading: a change presenting two phases—a nervous discharge giving rise to sensation of light, followed by a temporary paralysis causing the scotoma. But it is important to note that this sequence of positive and negative phases is by no means constant, and probably one must not lay too much stress upon it. It is, of course, conceivable that the changes arise lower in the visual paths. It has been suggested that they originate in the basal ganglia, and recent work showing the representation of the fields of vision in the external geniculate bodies makes such a localization reasonable. The by no means rare extension of a scotoma without a break from one lateral half of the field into the other complicates the problem of localization, but still leaves the visual cortex the most probable site of origin. The association of visual disturbances with aphasia or other symptoms suggests some widespread intracranial disturbance in one hemisphere; but to account for a monocular scotoma one must assume that the disturbance arises in the eye itself or in the optic nerve of the affected side. A remarkable case was described by Klien[16] in 1917. A woman, aged 51, had suffered for many years from ordinary migraine with scintillating scotoma, but in occasional attacks the visual aura took the form of a network with hexagonal meshes appearing before one eye. Klien attributed this symptom to entoptic vision of the hexagonal pigment epithelium of the retina. He suggested that the retina might be stimulated by changes in the epithelial cells brought about by impulses conveyed by the centrifugal fibres, whose presence in the human optic nerve was asserted by von Monakow.

The fundi have been examined in many cases during the time that scotomata were present. Some have noted pallor of the disc, others dilatation and pulsation of the retinal arteries, but it is generally agreed that as a rule no abnormal condition is found. Higgens,[17] however, examined a patient on several occasions during temporary attacks of monocular blindness associated with migraine, and found the retinal arteries reduced to mere threads, whilst the veins were distended. Watching the fundus, he could tell when vision was returning by noticing the enlargement of the arteries.

The character of the ocular palsies occurring in the ophthalmoplegic form of migraine indicates affection either of the oculomotor nuclei or of the nerves themselves. Some writers consider that these cases are not really migraine. It is well known that recurrent ocular palsies associated with headache and vomiting may occur over long periods in some cases of definite organic intracranial disease. *Post-mortem* examinations have been made in a few cases of recurrent ocular palsy with migraine-like headache and no other symptoms of nervous disease. In these cases lesions have been found involving the third nerve: meningitis with plastic exudation about the third nerve[18]; fibro-chondroma of the third nerve[19]; tuberculous enlargement of the third nerve at the point where it issued from the crus[20]; a fibroma the size of a split pea in the course of the third nerve.[21] Knapp[22] concludes that the recurrent palsy is due to some vascular change, inflammatory or oedematous, in a focal lesion involving the root of the third nerve. Although the scanty pathological evidence indicates that organic disease may be present in some cases of so-called ophthalmoplegic migraine, the clinical features and histories of many cases are such that one feels bound to regard them as examples of a specially severe form of migraine.

I do not propose to discuss at length the various theories of migraine, preferring to leave that to our neurological colleagues. My own feeling is that the immediate cause of a paroxysm is most probably a vasomotor change. The question of the relation of migraine to other vasomotor neuroses is one of considerable interest, and one which I hope will be discussed by later speakers. I have myself noted an interesting relation between urticaria and migraine in a patient whom I have had under observation for more than twenty-five years. In early life this patient suffered from severe attacks of migraine, starting with scotomata and aphasia. About the age of 25 the attacks of migraine ceased and she became subject to attacks of severe urticaria. The urticaria continued troublesome for some fifteen years, and during that time she was free, or almost free, from migraine. About the age of 40 the urticaria became less troublesome, and finally ceased, but with the cessation of the urticaria she again became subject to attacks of migraine, although less severe and much less frequent than in early life.

Whatever may be the essential underlying cause of migraine, there can be no doubt that it is very often inherited. Farquhar Buzzard,[23] in a recent Lettsomian Lecture, speaking of epilepsy, said that he accepted the view that that disease was a manifestation of instability on the part of some important nervous mechanism closely related to, if not identical with, the vasomotor system. Epileptic attacks he regarded as only the outward and visible signs of some permanent underlying nervous state, which was inherent in a certain proportion of the population. It appears to me that a similar hypothesis best explains the problems of migraine; that in the migrainous patient, too, there is an inherent permanent underlying state of instability of some important nervous mechanism closely related to, if not identical with, the vasomotor system. Given the inherent state, the development of the symptoms of migraine may be due to a great variety of accessory causes—for example, toxaemia, eye-strain, protein sensitization, psychological repressions, etc. Many writers seek to establish one of these accessory causes as the essential factor in the etiology of migraine. So one will claim to cure all cases by a system of dieting, another by correcting errors of refraction, another by psychotherapy, and so on. All such claims to universal efficacy of one line of treatment I believe to be mistaken, but possibly all of them may be effective in some cases by removing accessory causes of the disorder. The conception of migraine as due primarily to some innate peculiarity in the constitution of the nervous system, but liable to be excited or aggravated by accessory causes of various kinds, is no new thing. It was supported by Liveing in his classical work on the subject, and it still seems the most useful theory on which to base our treatment.

As ophthalmic practitioners we are, of course, especially interested in the question of the part played by errors of refraction and heterophoria in causing migraine. Very different views are held on this question. It may be said that ophthalmologists are not in a position to give unbiased opinions thereon; but even among physicians I find that opinions differ considerably. Thus, quite recently, two distinguished physicians have expressed almost diametrically opposite opinions. On the one hand, Dr. James Collier[24] writes that very undue prominence has been given to the importance of errors of refraction, that the majority of the subjects of migraine have no errors of refraction, and that the correction of such errors has never cured migraine. On the other hand, Dr. Hurst[25] states that his experience points to an ocular origin as being of importance in the great majority of cases, if not in all. He considers that few modern writers give the ocular factor the prominence which he is convinced it ought to have. He states, further, that the most important treatment is the correction of the eye-strain, that personally he has never seen a case in which eye-strain was not present, and only two in which its correction did not either cure the patient or lead to considerable improvement. It appears to me that this question requires joint investigation by physicians, ophthalmologists, and statisticians.

It is impossible for an ophthalmic surgeon to be sure that the migraine cases he sees represent a fair sample

far as the latter condition was concerned, Dr. Gordon suggested that there was a condition which corresponded to that of ordinary epilepsy, but chiefly affected the occipital lobe rather than the motor area. In the first place, it was generally recognized that the mental attitude of so-called idiopathic epileptics was often, if not always, a peculiar one. There was an egocentricity and narrowness of outlook, combined with a certain truculence, which on further investigation proved to be a compensation for a definite feeling of inferiority. Now in many migrainous patients—the speaker's limited experience would not allow him to say more—there was a similar mental attitude towards life. Further, it was by no means unusual to find symptoms common to both conditions, and Dr. Gordon quoted one case illustrating this contention:

An epileptic gave a history of fits dating from the age of 6, when he was stated to have sustained a severe injury of the right temple. At times the ordinary attacks of grand mal and petit mal were replaced by what were called visual equivalents. In these attacks there appeared before his eyes lights, or sometimes figures which started in the centre of the field of vision and passed over to the right margin of the field. While these were going on he had a right homonymous hemianopsia, which passed off with the end of the attack.

Here apparently there was suppression of the proper highest function of the visual cortex at the left occipital pole with substitution or liberation of lower and less co-ordinated function. This corresponded exactly with what happened in lesions of the motor cortex which caused fits. The explanation of these attacks was, of course, uncertain, but there seemed to be evidence of inherent or acquired injury (by contrecoup) to the superficial cells of the left occipital lobe, so that under certain conditions their function was entirely abrogated, and the activity of deeper and lower grade cells was liberated. In this connexion a result of less severe occipital lesions could not escape notice—that is, the frequency with which typical migrainous attacks were initiated by such an injury. These were characterized by a visual aura followed by headache, and the analogy with the visual epileptic equivalents described above was at least permissible. He would suggest that in these traumatic cases of migraine the condition depended, at least partially, on an interference with the highest grade superficial cells whose function was to control the activity of the lower; further, that a liability to migraine depended on an instability of these highest grade occipital cells, just as an epileptic fit depended on an instability of the highest grade cells of the motor cortex. A further analogy to epilepsy was supplied by the rare occurrence of automatisms following migraine, analogous to the automatisms of epilepsy. A case of typical migraine sometimes showed asocial behaviour with irritability and violence after the attack. This condition passed off and the patient was quite unaware of what he had done. It was not suggested that migraine was epilepsy, but that in certain cases both were manifestations of the same underlying nervous instability which might be due to a variety of causes.

Dr. E. I. SPRIGGS (Ruthin Castle) said that when he was a student there were many physicians sceptical about the benefits of treatment generally. Although never one of them, he said that there were certain groups of cases whose treatment he undertook formerly without much expectation of benefit, which he now knew could often be relieved. Among these were the sufferers from headache. So many headaches were regarded as chronic, recurrent, familial, or due to the nervous make-up of the subject, that they seemed to be evils to be borne with such alleviation as a few simple medicines could afford, rather than a field for active inquiry and treatment.

To the general physician, as distinguished from the neurologist, there was some danger of headache being an unclassified symptom. Indeed, it was hard to make a classification which was at the same time concise and adequate. Certain clinical types stood out, but many headaches did not conform to a clinical type. This was not the occasion to discuss the classification, but it might be of interest to refer to the proportion of migraine to other headaches in the work of a general physician. Of 1,219 patients at Ruthin Castle in the years 1923 to 1926, 89 (7.3 per cent.) complained of headache as a major symptom on admission. Of these, 4 per cent. (57)—that is about two-thirds—complained of headache as the chief symptom for which relief was sought. Going back a little further than three years Dr. Spriggs had added 11 earlier cases, so as to get 100 consecutive patients complaining of that symptom: 65 were women, of an average age of 44; 35 were men, of an average age of 50. In comparing these with other published cases it should be borne in mind that all were severe. He had compiled a classification, which it would be recognized was founded on the writings of Auerbach, Wilfred Harris, Gordon Holmes, and Pavey-Smith, as a basis on which to found an analysis. Each of the 100 cases was investigated with some care, and after the investigation was made the patients were distributed under the various kinds of headache, as shown in the accompanying table.

Causes of Headache.

I. CRANIAL.	
Sinuses	4
II. EXTRACRANIAL. Referred pain from—	
Teeth	2
Lungs (asthma)	1
Stomach and duodenal ulcer	3
Gastric or intestinal adhesions	1
Appendicitis	3
Gall bladder	5
III. INTRACRANIAL.	
Dural.	
High blood pressure—heart disease (including some cases of renal disease)	20
Vasomotor—	
Migraine	12
Cough	1
Hyperthyroid	1
Hypothyroid	1
Hyperadrenia	1
Toxaemia—	
Constipation	23
Diverticulitis	4
Colitis	2
Uraemia	2
Diabetes	1
Tobacco	1
Alcohol	1
General paralysis of the insane and cerebral syphilis	3
Pituitary tumour	1
Petrosal phlebolith	1
Low blood pressure (including 1 lumbar puncture)	2
Cortical.	
Cerebellar or basal ganglia	1
Nervous exhaustion	2
Mental	1

It would be seen that 12 cases were classified as migraine—namely, a periodic headache, usually with some kind of aura, going on to vomiting, beginning in childhood or youth, and often hereditary. A difficulty, however, arose. For in this series there were 24 other cases in which the headaches were in all respects typical of migraine, except that they dated back a few years only, were associated with a definite morbid state—gall stones, appendicitis, severe constipation, some definite anxiety or responsibility—and were frequently lessened or abolished on the removal of the associated lesion or strain. There were, therefore, 36 cases out of the 100 in which the headaches were migrainous in type. Were they justified in saying that because in 12 patients the attacks began in childhood, and in some of them were hereditary, these were true cases of migraine, and the others, arising from various causes in later life, were symptomatic migraine? The speaker's experience suggested that the more thoroughly the case was inquired into the less clear this distinction became.

It was admitted that true idiopathic migraine was excited by a variety of adverse influences—strain, overfatigue, want of food, alcohol, bad air, eye-strain, and menstruation. The onset of migraine in adolescence, for example, was ascribed to the strain of entering on the serious business of life. But a greater strain might come later in the conduct of that business, and might give rise to migraine then. He suggested that there was no boundary, from a classification point of view, between the poison or irritation from bad air and eye-strain, and similar effects from constipation or a diseased appendix.

Further, in some of the cases dating back to childhood, a definite physical lesion was present, the treatment of

originally known, the status thymico-lymphaticus. In these cases, with their inadequacies—lack of resistance, fatigability, low pressure, and low blood sugar—he believed that a gradually increasing activity of the pituitary (also of thyroid and adrenals probably) occurred, with the production of a true hyperplasia. This gradually, through pressure, caused an enlargement of the sella turcica, with erosions and faceting. But this hyperplasia was of the nature of a compensatory process, overcoming in a measure the inadequacies of the individual—that is, the blood sugar increased, the blood pressure improved, and the fatigability vanished. During this process, before the sella was sufficiently enlarged, migrainous attacks were frequent, owing to the many causes enumerated, each of which produced a rapid demand for pituitary activity. In the course of time—decades usually—the sella became sufficiently enlarged to permit of exacerbations of pituitary activity without undue pressure, and hence the spontaneous cure of these migraine attacks.

As regards the relation of pituitary migraine to epilepsy, which had been touched upon by Professor Bramwell, in Dr. Timme's experience there were two types of epilepsy—one due to pituitary inadequacy, accompanying Fröhlich's adiposo-genital dystrophy, in which the infundibulum was subjected to such pressure as to prevent sufficient circulation of the pituitary secretion; and the other, the low blood sugar type, due to moderate fasting. This blood sugar was lowest, as would be expected, after the long interval without food ingestion between the evening meal and breakfast, and hence the epileptic attack came on in the early morning just upon arising. Both these forms of epilepsy were associated with pituitary inadequacy in many patients, who for similar reasons—associated with small sellae turcicae—also had pituitary migraine. The hereditary factor was the small enclosed sella. (A simple anatomical unit-character in hereditary transmission probably.) It was interesting to note in this connexion that if such patients, before arising in the morning, took some easily digested food, carbohydrate preferably, and waited a little before getting up, no attack would occur. The most easily diffusible carbohydrate was probably alcohol, and, paradoxical as it might seem, a small quantity of whisky, perhaps half an ounce, given daily to these patients before arising, was quite effective in preventing the attack. This was just another example of the folly of treating alike all cases called by the same name, for alcohol in other types of "epilepsy" was apparently bad. Dr. Timme hoped that he had conveyed his idea that there was a pituitary type of migraine, that it was not necessarily a disease process, but a compensatory one tending to final cure of the individual in the gradual enlargement of the sella turcica, and that the headache was merely its hall-mark.

Dr. Gordon Holmes (London) knew of no subject more suitable for discussion by members of all branches of the profession than migraine, for not only was it one of the most common of the minor maladies, but it was, in his experience, frequently not recognized, owing to the fact that the existence of visual phenomena was generally regarded as a necessary and essential feature. As Professor Bramwell had pointed out, this was by no means so—not more than 50 per cent. of cases ever had teichopsia, and among those who had it the symptom did not accompany every attack. It was frequently said that though visual phenomena occurred in the earlier attacks, they ceased in the third or fourth decade of life. Dr. Holmes had no doubt that migraine was a clinical entity—that is, it had a constant and uniform pathological basis. It was true, as Professor Bramwell had said, that they met with symptomatic migraine in renal disease and other conditions, but these attacks must be separated from true migraine. He agreed with Dr. Timme that a swelling of the pituitary might produce headache and some of the other symptoms he had described so vividly, though it was to him unintelligible how a hyperplasia—that is, an increase in the number of the functional elements of the pituitary gland—could cause symptoms which developed so rapidly and usually passed off in the course of four or five hours.

To treat this common malady rationally it was necessary to have some idea of its pathology, but unfortunately, though theories abounded, facts were few. Professor Bramwell had revived the vasomotor theory; to him (Dr. Holmes) there seemed little evidence in favour of it. Vascular spasm might be due to either some substance circulating in the blood, as an endocrine hormone or a toxin, or to change in the sympathetic innervation of the arteries. In migraine a local change in the brain must be assumed to explain the visual and other symptoms, and this could scarcely be directly due to a substance circulating in the blood. The acceptance of a sympathetic origin was quite as difficult, for not only had an innervation of the cerebral blood vessels never been demonstrated, but Florey's recent investigations by van Krogh's method of direct observation of the cerebral vessels under a microscope had shown that they could not be influenced by stimulation, section, or other effect of the sympathetic, nor by drugs or extracts that act on the sympathetic system. Consequently not only was there no evidence for this theory, but its possibility seemed definitely disproved.

It had seemed to him that the symptoms of migraine could be more easily explained by the assumption of a local swelling of the brain due to a local and temporary alteration in the osmotic relations of its substance with that of the fluid in which it was bathed, resulting in an imbibition of fluid and consequently a local swelling. That such swellings of the brain did occur they knew from the work of Reichert and others. If it affected the occipital lobe they obtained the positive and negative visual symptoms of migraine, the teichopsia and scotomata, and the swollen brain pressing on the membranes would cause the headache, for the pain must be referred to a disturbance of the meningeal nerves. Two arguments favoured this hypothesis: in the first place, Dr. Holmes had seen several persons who had been subject to migraine, which ceased after an operative or traumatic opening of the skull; and in the second, the peptone treatment, to the success of which Professor Bramwell had referred, might act by inducing changes in the reactions of the proteins.

One form of migraine deserved further notice. Professor Bramwell had referred to migraine-like symptoms occurring in renal and other affections; a recurrence of true migraine might be due to the same and other causes. He had seen many patients who had suffered with migraine in youth and, as so often happens, became free from attacks in middle life, who again became subject to more or less typical attacks during the course of chronic nephritis, arterio-sclerosis, or on exposure to certain poisons, especially alcohol. In some of these cases the recurring attacks reproduced those of earlier life; in others there might be headache and vomiting only, or these associated with various symptoms of cerebral origin. The practical importance of this group of cases was that treatment of the intercurrent affection generally relieved the migrainous attacks.

The treatment of migraine must still remain empirical and mainly symptomatic owing to ignorance of its pathology. Luminal, bromides, and nitrites were helpful in many cases, and it was only by experiment that they could determine which suited any individual patient. They must also search for exciting causes and remove them, whether they were eye-strain, articles of diet, drugs, or psychological factors. Some patients undoubtedly obtained some relief from correction of errors of refraction and imbalance, but in the speaker's experience the value of these measures, even when undertaken with the most scrupulous care, had been grossly exaggerated. Change of occupation and environment had rarely any permanent effect.

Dr. R. G. Gordon (Bath) said that it seemed generally agreed that migraine was a complex subject, and no one could suggest that any one cause was responsible, any more than that any one method of treatment was likely to be successful in every case. Quite apart from the immediate precipitating cause of the attack there did seem to be some inherent defect in these patients which rendered them sensitive to these various influences which had been discussed. It frequently happened that children who suffered from cyclic vomiting developed migraine in later life. So

migraine from every point of view, and Dr. Spriggs had pointed out that a subdivision into true and symptomatic migraine might be dangerous, since the need for an exhaustive examination in the former group might not be realized. With these opinions the speaker was in entire agreement. One of the most important points which had emerged from the discussion was that every case must be considered as a distinct problem from the therapeutic standpoint. Dr. Gordon had emphasized the psychological aspect of the subject, but in the speaker's opinion the relation to epilepsy was not so close as Dr. Gordon would have them believe. Dr. Potts's observations on the effects of the ingestion of sugar were of interest in relation to Dr. Timme's views. In conclusion, Professor Bramwell said that he could lay no claim to originality for the views he had expressed, except perhaps that he had attempted to correlate the etiological data and advance an explanation which he had not heard previously suggested to account for the headache.

SECTION OF ANAESTHETICS.

SAMUEL JOHNSTON, M.D., President.

DISCUSSION ON THE FUTURE OF ANAESTHESIA.

OPENING PAPERS.

I.—SAMUEL JOHNSTON, M.A., M.D., C.M., F.A.C.P.,

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IN this workaday world we cannot rest content with the achievements of the past or the progress of the present. Although anaesthesia has passed the venerable age of threescore years and ten I cannot challenge your attention more dramatically to its age-old value than to ask the question, What would happen to-morrow if anaesthesia were blotted from the world to-day? The whole structure of modern surgery, a great part of medical practice, and most laboratory research would go crashing into the abyss of oblivion. Can you conceive of life going on without surcease from pain in face of the fact that, day by day, as many casualties of peace drift into our hospitals as were evacuated from the trenches in the war?

Commonplace as anaesthesia has become to us, it remains so vital a concern to the public that in the United States the only members of the medical and dental professions in the Congressional and New York University Halls of Fame are Crawford W. Long and William T. Morton—those imperishable figures of the first use and public demonstration of etherization for painless surgery. Nor should we forget that had it not been for other immortals of anaesthesia its beneficence might have been lost to us, even after its discovery and demonstration. At a time when the utility of anaesthesia in surgery hung in the balance of space John Snow went into the laboratory and gave the specialty a scientific interpretation and developed satisfactory methods for clinical use. In so doing he became the founder of that illustrious line of research workers and anaesthetists who have graced the specialty since his day.

Had Sir James Young Simpson lacked the courage to defeat the entrenched religionists, or had Her Majesty Queen Victoria failed him in personally approving chloroform *à la reine*, our women of to-day, under the curse of Eve, might still be bringing forth their children in pain and sorrow.

What of dental anaesthesia, had Wells, Morton, Colton, and Evans been timid and unventuring souls instead of the intrepid pioneers they were? We still believe that painless surgery was welcomed with open arms by many, despite the fact that when Hickman memorialized the French Academy, Velpeau and his associates denounced the claims of anaesthesia as a chimera, and only Larrey, of later Napoleonic fame, believed in him. Even in the sixties General Grant had to override the bitterest opposition of his own army medical service in giving Morton a special field ambulance, and permission to anaesthetize the wounded rebels and Yankees in the later campaigns of the Civil War; thus 10,000 were spared the conscious agony of sitting in at their own operations.

Assembled as we are to-day, we think of anaesthesia as having permeated the known world, and yet among nations of hundreds of millions of souls, painless surgery is as primitive now as it was among the Scythians and Incas and in China in the days of Hoa-tho! When we consider the future of anaesthesia, what of these numberless hordes? In our own midst how many countless things are done in our hospitals, clinics, offices, and the homes of our patients, with never a thought of pain relief? This is one of the remaining cruelties of medical practice, and must pass before we are really entitled to the affection and esteem of the public, who look to us to deliver them from unnecessary suffering.

ORGANIZATION.

Organization has been the slogan of progress in all ages, and anaesthesia has had its full quota. The famous old London society, now the Section of Anaesthetics of the Royal Society of Medicine, this Section of Anaesthetics of the British Medical Association, and the Scottish Society of Anaesthetists, all have their counterparts in the Associated Anaesthetists of the United States and Canada and its five regional societies—the Canadian, Eastern, Mid-Western, Southern, and Pacific Coast.

Whether further regional organization would advance the progress of anaesthesia in the British Isles and the status of British anaesthetists is something for your discreet consideration. But this recognition of anaesthesia by the British Medical Association leads us to hope for the development of sections or societies in the colonies, especially Australia, New Zealand, and South Africa, where interest in this connexion is already rife.

In our experience in the United States and Canada regional organization has been found very influential. Our Congresses of Anaesthetists are usually held at the same time and place as the annual meetings of the American Medical Association; the Canadian Anaesthetists meet with the Canadian Medical or some Provincial Association; the Eastern and Mid-Western Anaesthetists usually hold joint sessions during the week of the Clinical Congress of Surgeons; the Southern Anaesthetists meet with the Southern Medical Association, and the California Medical Association usually acts as host to the meetings of the Pacific Coast Anaesthetists. In this way the message of anaesthesia is brought home to members of the most important medical and surgical organizations in at least five metropolitan centres every year. Also the conjunction of such organizations in their meetings provides papers of unusual excellence for the programmes and speakers of very high calibre. In covering so vast a territory, anaesthesia is developed very broadly, and anaesthetists, no matter where located, have every opportunity to attend and profit by the progress that is being reported. In addition, they are given the opportunity to contribute the results of their own work.

The most recent advance in organization is represented by the Anaesthesia Research Society, originally only national, but now international in scope. This society would seem to have an interesting future. So far, during its brief existence, it has organized a Research Committee of the more important scientific and clinical investigators in the specialty; it has established its own journal (*Current Researches in Anesthesia and Analgesia*); it has issued special monographs, and anticipates reviving an Anaesthetic Year-Book, while at the same time it is finding funds for fostering research. Beginning with 1926, this society is sending its *Journal* to every American and Canadian medical and dental school and society, as well as teaching hospital libraries, with the purpose of making the progress of anaesthesia available in as many places of reference as possible, especially for the generation of anaesthetists which will follow our own. Its Record Committee has developed a uniform anaesthesia chart, and is working on a student's chart for teaching purposes.

The activities of the Research Society have so intrigued pure science that its most noted devotees in the larger universities and laboratories find pleasure in attending the various meetings and presenting their latest investigations

which relieved or cured the headache. If too much stress was laid upon the distinction between idiopathic and symptomatic migraine there was a danger lest the idiopathic cases be regarded as definitely diagnosed, and that further steps be not taken. It was a mistake to regard any case as one for prophylaxis and alleviation only until a thorough physical investigation had been made; two cases were described in illustration of this.

Each of these patients gave a typical history of idiopathic migraine. In each a morbid state was present, the relief of which cured the headaches. A number of cases could be quoted in which the systematic treatment of intestinal stasis, leading to regular natural actions, relieved or cured the migraine. The use of irritative aperients was not adequate treatment for constipation. Purgation might relieve a headache, but would do nothing to prevent its recurrence. It might be mentioned here that in two instances a patient had a severe migraine during an *x*-ray examination with a barium meal, and in each the peristalsis of the stomach was arrested, little or no food passing out. In the last of the above-described cases there was still barium in the stomach twelve hours after the meal. On re-examination the stomach emptied in four hours.

Prophylaxis, by a close review of the daily habits of life and correction of special stresses, was the first line of treatment. Special diets were not of advantage unless directed to a definite morbid state, such as in the alimentary or renal system. In two-thirds of these cases the headaches ceased, and others were greatly benefited. In 4 cases a diagnosis was made but no treatment was given.

The proportion of good results was far higher than Dr. Spriggs would have expected ten years ago, and higher than was expected when the review of the series of cases was entered upon. It was due to (1) the discovery and treatment of a concomitant diseased or disordered state, and (2) the better environment and withdrawal from habitual strains. The factors were environment *plus* morbid state *plus* special strains. The aim was to try to remove both the latter. In many patients freedom was enjoyed if one factor only was removed.

The conclusion Dr. Spriggs drew was that no case of migraine, whether lifelong or arising in adult life, should be accepted as a necessity, to be simply palliated and endured, until after every possible source, not only of mental and psychical, but also of physical disorder, had been excluded so far as possible by a careful investigation and appropriate treatment.

Dr. W. A. POTTS (Birmingham) thanked Dr. Timme for his interesting account of the type of migraine associated with functional enlargement of the pituitary gland, which he felt sure was correct. Such cases were like forms of epilepsy due to hypoglycaemia. Although Dr. Potts agreed with Dr. Timme's statement regarding the value of alcohol, he wondered why Dr. Timme had not recommended barley-sugar, which, in the speaker's experience, was the most effective remedy. With reference to Dr. Spriggs's suggestion that fear of life was a marked predisposing cause in adolescents, and later the conduct of life a more potent cause, Dr. Potts asked whether the so-called conduct of life was not, in many cases, still the fear of life. Dr. George Robertson, in his recent interesting Maudsley Lecture, had shown that in middle life the incidence of psychosis was greater in the unmarried, possibly because they were not taking up the full responsibilities of life, and had suggested that responsibility was actually preventive of mental disease. Dr. Potts inquired how many of the cases Dr. Spriggs considered due to the conduct of life were unmarried.

Dr. G. E. NESBITT (Dublin), as a personal sufferer, testified to migraine being a clinical entity. He considered heredity a doubtful etiological factor as he had met with many cases in which no such influence could be traced. Although attacks occurred under all conditions, suggestion might play a part—for example, he had known the elicitation of symptoms from a patient suffering from migraine followed by an attack in the investigator. By a determined effort of concentration it was often possible to maintain central vision during an actual attack in spite of the absence of peripheral vision. The two theories concerning etiology which most appealed to him were those of (1) vasomotor disturbance, although the cause of such a disturbance had yet to be found, and (2) pituitary enlargement. Why the pituitary alone should swell, however, and not the other endocrine glands, needed explanation.

Mr. E. W. BREWERTON (London) mentioned a case of severe migraine with a visual aura in which great relief had been afforded by complete rest, with the application of heat (an india-rubber hot-water bottle) to the occipital region until normal vision returned; then cold applications until the headache was relieved.

Dr. C. WORSTER-DROUGHT (London) suggested that there was at least one form of migraine or migrainous condition that was very closely allied to epilepsy, if not an actual equivalent of an epileptic attack. Contrary to Professor Bramwell's experience, he had met with several examples of migraine and epilepsy in combination in the same patient; the epileptic attacks were usually of the petit mal type and often occurred early in the morning. Recently he had seen two cases in which petit mal occurring in childhood had been replaced by migraine in adolescence and later life, and he had also seen cases in which the reverse had happened. Concerning etiology, Dr. Worster-Drought could recollect no case of true migraine in which no refractive error was present. Unfortunately, however, correction of such an error was not a certain cure, though many cases were undoubtedly benefited. He recalled a few cases of migraine with severe hemicrania in which unilateral dilatation of the pupil (on the affected side) was present only during the attack. This feature suggested overactivity on the part of sympathetic fibres and lent some support to the vasomotor hypothesis.

As regards medicinal treatment, the most efficient remedy for preventing migraine, or at least diminishing the frequency and intensity of the attacks, was luminal administered in half-grain doses twice or thrice daily over long periods—almost indefinitely. Calcium in large doses was successful in some cases, but many were unrelieved. He had seen several patients benefited considerably, however, by the intravenous injection of a solution of a calcium-urea compound (afenil) in 10 c.cm. doses, carried out twice weekly; as the solution was most irritating to subcutaneous tissues it was necessary to inject it intravenously with the utmost care. In his hands both endocrine and peptone therapy had proved disappointing. He was very interested in Dr. Gordon Holmes's remarks on the possible value of cerebral decompression, as he had met with a case of severe migraine associated with mucous colitis. The patient, a lady now aged 40, developed migraine at the age of 23; the attacks occurred at intervals of about six weeks with prostrating intensity, and all remedial measures proved unavailing. At the age of 33 a subtemporal decompression was performed on the left side, and following this the patient remained completely free from migraine for nearly five years; two years ago, at the age of 38, they had recurred, with an average frequency of one in two months, but with less intensity than formerly.

Professor BRAMWELL, in reply, said that Dr. Timme's observations upon migraine had opened up a broad field. The question whether migraine was to be regarded as a symptom-complex or as a distinct clinical entity was indeed of much interest. As Dr. Gordon Holmes had mentioned, the vascular origin of migraine was first suggested fifty years ago and had had many advocates since that time. Higgens's observations, mentioned by Mr. McMullen, appeared to afford strong corroborative evidence in support of this view, for they indicated that some of the visual phenomena were due to vascular disturbance. The cumulative evidence in favour of the vascular view was indeed, in Professor Bramwell's opinion, very strong despite the experimental results of Florey to which Dr. Holmes had referred. Both Dr. Holmes and Dr. Nesbitt were inclined to discount the tendency to a neurasthenic heredity, but with this opinion he was unable to agree. Mr. McMullen had emphasized the necessity of examining cases of

Anaesthesia anticipated this change in attitude, and the International Anaesthesia Research Society in developing its uniform Anaesthesia Record—which is really a safety first campaign to prevent needless fatalities—stands ready to co-operate in bringing surgery from under the odium of the time-worn adage, "The operation was a success, but the patient died."

For the future, the patient's fate is not to be left to chance. Hence the Research Society's Record demands the following essentials:

1. Evaluation of surgical and anaesthetic risk before operation, to determine what pre-operative therapy, preparation, and care will add to the prospects for a safer operative ordeal and a more assured recovery.
2. Five-minute blood pressure guides and safeguards during the entire operative period, to give accurate information to indicate that the patient is still in a zone of safety, or to anticipate the onset of shock and provide remedial measures in time to be effective and life-saving.
3. Evaluation of recovery indices after operation, to determine post-operative therapy and care that will reduce morbidity to a negligible minimum.

Simply as these essentials may be stated, they can be made to include all the resources of experimental and clinical progress in medical practice as adaptable to the preparation, protection, and recovery of operated patients; and the more intensively and routinely anaesthetists and surgical teams extend the use of these safety-first essentials and chart the treacherous course 'twixt life and death, the more gloriously will they serve the interests of safer surgery, and the sooner will they secure the utter and complete confidence of suffering humanity. The "supposedly fit" will cease to pass away unexpectedly and without adequate explanation; the "gravest risks" will no longer be hurried into emergency operations without safeguarding preparation; and there will be no guesswork about what is happening to the patient during the operative period. Finally, the critical seventy-two hours of post-operative anxiety, morbidity, and too frequent mortality, will give way to the blessing of a comfortable and uneventful recovery.

At the present time the Record Committee of the International Anaesthesia Research Society is working on the development of a Teaching Anaesthetic Chart that will enable students and interns to collate in detail the entire fund of their medical knowledge in terms of diagnostic and prognostic aid. This chart will make all pertinent data of the complete history, as well as the results of further indicated examinations and tests, available for exhaustive pre-operative evaluation, operative protection, and post-operative recovery. Time and experience will then show how such charting and evaluation may be simplified and concentrated without sacrificing anything that assures safety-first surgery and anaesthesia.

Sources of Progress.

It is readily to be seen, from the records of progress in the past decade, that the specialty of anaesthesia is prepared for future development. Research workers have enthusiastically discovered and perfected newer general and local anaesthetics; manufacturers have made them available in quantity and quality, and with proper equipment for widespread use; and anaesthetists and other specialists have given them rapid and thorough clinical trial. The end is not yet. We seem to stand on the threshold of a new era, in which the very mechanism of anaesthesia itself will be explained, and after that the possibilities of progress would seem to be limitless.

Nothing would seem to be more important to the future of anaesthesia than the co-operation of all concerned in securing supplies of anaesthetics that may be depended on for absolute and undeviating purity and potency. This holds true for the older anaesthetics, such as chloroform, ether, ethyl chloride, and nitrous oxide, as well as for the newer anaesthetics—acetylene, ethylene, and propylene. Strange as it may seem, in spite of all efforts at foolproof production, packing, and storage, anaesthetics still get into the operating room that now and again are open to the suspicion of contamination with impure or deteriorating by-products. It augurs well for the ultimate solution of this problem that a joint committee to investigate and act in these premises has been established by the British Medical Research Council and the Section of Anaesthetics of the Royal Society of Medicine. No precautions in commercial handling, hospital testing, and operating room use can be too rigid or exhaustive in obviating the occasional disasters, seemingly due to unaccountable and all but inexplicable impurities in anaesthetics.

While connexions that would in any way commercialize the specialty of anaesthesia or the practice of medicine as a whole could not be countenanced, it has remained for the University of Toronto to show the way in which a new clinical remedy (insulin), the product of intensive laboratory research, may be made available through commercial channels without prejudice and to the best interests of everyone. There would seem to be no good reason why newer anaesthetics should not be developed and made available according to the same ethical plan, and the royalties accruing from such used for further research in anaesthesia.

Perhaps without realizing the full significance of what has been done, or its possibilities, anaesthesia has established two central exchanges—one in Manchester and the other in Avon Lake, Ohio. If any of you have had occasion to get in touch with either of these exchanges, to secure information or to be connected with someone who could give it to you, you will readily appreciate my inference that such exchanges and those who man them play an important part in the future of anaesthesia. The specialty is fortunate in having the incumbents of these exchanges peculiarly qualified to carry on the editorial organization and executive duties that are involved.

Regarding the Manchester Exchange, it is splendidly manned by Dr. H. M. Cohen, assisted by Dr. S. R. Wilson, both of whom need no introduction to this Association. They are doing excellent work and receiving loyal support from their fellow anaesthetists.

The "Little Father of Anaesthesia" in the United States and Canada to-day—Dr. Frank H. McMechan, who is the "Avon Lake Exchange"—has the heart-whole affection and devotion of each and all of us who know him. To him belongs the credit of the organization of the existing societies of anaesthetists in these two countries, as well as the founding of the International Anaesthesia Research Society. "The centre of every man's existence is a dream," and anaesthesia and its advancement have been his. His inspiration has come from "a clear vision of the eternal landscape of the past," and to him we owe our meeting here to-day—an achievement truly worthy of a Prometheus!

If other such exchanges can be established to serve as well as the existing two, we should have at least one such exchange in every country in which anaesthesia is recognized and practised as a specialty.

The present Clinic Tour, in which all too few of the leaders of anaesthesia in the United States and Canada have found it possible to participate and meet their fellows in the specialty in Ireland, Scotland, and England, is a sequel to the visits of two of your representatives—Dr. H. E. G. Boyle and Dr. Z. Mennell—to our congresses. In extending and cementing the fellowship of anaesthesia in this personal way, may we not look forward to many joint meetings, as well as to the prospect that out of these associations of the present and past many more may eventuate for the future, and out of them may be developed a College of Anaesthetists, international in scope and purpose? The founding of such a college would go far in raising the specialty of anaesthesia to its proper level, and the qualifications could be made exacting enough for membership to be a challenge of perfection in work and prestige of character.

The Patient's Point of View.

In viewing the future of anaesthesia from the annals of the past, one realizes above all else the momentous changes due to scientific progress; but in this vision we must never for one moment forget that in this world of ours from the dawn of history one thing has remained in the very midst of its own wildest vagaries strangely immutable—human nature. For that reason the patient's point of

and results. This has enabled the society to provide very remarkable sessions of research papers, and has opened many laboratories for experimental demonstrations. This correlation of interests has brought the achievements of science into the operating room and has sent the clinical problems of anaesthesia back to the laboratory for solution. When time and place have permitted, the programmes of several of the Congresses of Anaesthetists have been equally divided between the usual sessions of papers and lecture demonstrations in laboratories of members of the Research Committee. These latter enable those in attendance to come up to date on the experimental advances in their specialty.

In fostering the fellowship of clinical anaesthesia with pure science, officers of the Associated Anaesthetists and Governors of the Research Society are accustomed to attend the holiday recess meetings of the Federated Societies of Experimental Biology, and it may be said, with pardonable pride, that anaesthesia is often the only specialty participating in these invaluable sessions. As an illustration, following this meeting in Nottingham many of those who are on the Clinic Tour Abroad will go on to Stockholm in pleasurable anticipation of extending co-operative relations with the leaders of the International Congress of Physiologists.

Teaching Anaesthesia.

The fact that an older generation of anaesthetists may have lacked something of the laboratory development of present-day medicine does not prevent us from realizing that progress in anaesthesia has always rested on a foundation of clinical practice and experimental science, and in visioning the future we cannot but feel convinced that the coming generation of anaesthetists must have the resources of applied physics, mechanics, chemistry, biochemistry, pharmacology, and pathology as part of the basis of their future careers. Coupled with these, there must also be a well rounded out medical education in the essentials of general practice and of the specialty, and most particularly in the technical and clinical phases of anaesthesia. Such requirements are none too drastic. In fact, a correlation of basic subjects in terms of essential knowledge, in relation to future utility, is merely a common-sense preparation of the medical student for clinical practice. When possible, it is always preferable to develop information and technique on experimental animals than on human beings—always remembering, however, that the practice of medicine is a humane art, and not a cold-blooded laboratory experiment.

For the future it is hoped and expected that all these intimate alliances with the basic and experimental sciences already mentioned will result in the preparation and publication of a loose-leaf textbook on anaesthesia—not for the student, but for the teacher—a textbook that will in résumé exhaust the essential knowledge of the basic and applied sciences in relation to experimental and clinical anaesthesia, and which, from time to time, will be revised to include current and valuable progress. With the consummation of such an arrangement as this anaesthesia could be very readily fitted into the present curriculum, and could be taught intelligently from the viewpoint of applied science in relation to the solution of clinical problems.

Ideal of Service.

Back of this idea in teaching is an ideal of service. Medical education and organized anaesthesia cannot accomplish their larger purposes merely in securing a steady flow of housemen, proficient enough to satisfy the demands of hospital anaesthesia service and ambitious enough to provide a limited source of recruits for maintaining and extending the ranks of the specialty. If the medical profession is ever to accomplish the broader possibilities of anaesthesia in relation to public service every physician must be qualified to give safely, pleasantly, and efficiently such anaesthesia as may be required in painless childbirth or minor surgery, whether in the home, industrial clinic, or office. Also a certain number of better trained and more competent anaesthetists are required to go into this work in the hospitals of smaller towns, where more and more of the surgery of the future is going to be done. As such anaesthetists develop through years of practice, they may look forward to staff positions challenging in importance those of the anaesthetists who have elected to stay on in the teaching hospitals in the larger centres and make anaesthesia a metropolitan career. It is understood that, as in the past, teaching hospitals must continue the policy of fostering the development of anaesthetists who vie in calibre with the personnel of any other department.

Details of the plans for securing these three types of anaesthetists would necessarily differ according to local conditions and circumstances. Suffice it to say that they are being secured in certain localities by the co-operation of those interested in accomplishing the ideals of service. The general practitioner anaesthetist is essential to fulfil the obligation of the profession toward the public demand for the universal relief of pain and suffering, whenever and wherever that is possible in medical practice. The clinical anaesthetist must be the internist of the surgical team, and be capable of standing shoulder to shoulder on common ground with his fellows in the College of Physicians. The teaching anaesthetist must be the liaison officer between the research laboratory of the medical school and the surgical department of the hospital. His is the alchemy of transmuting pure science into applied science and practice, for the benefit of all concerned—students, surgeons, patients, hospitals, and his own associates and work in the specialty.

Almost all hospitals of any pretension appreciate the value of expert anaesthesia, and on their staffs have specialists in this work. Opportunities have thus been afforded for the development of the art to a very high degree. The result is that the mortality under anaesthesia has been reduced to a minimum, and patients entering a hospital have for their comfort and safety the services of men of large experience and scientific training in the art of anaesthesia.

In considering the future of the teaching of anaesthesia one naturally takes a survey of its past history and present advancement, and the short period of time that has elapsed since the introduction of this subject in the curriculum of our teaching hospitals is amazing. When it is realized that only within the last twenty-five years have interns in our Canadian hospitals been taught anything of the art of anaesthesia, or that students were given more than one lecture in this subject during their entire medical course, the growth in this specialty, as exemplified in the present system of anaesthesia in the Toronto General Hospital, would appear phenomenal. To-day there exists in this institution, which is affiliated with the University of Toronto, a department in anaesthesia consisting of a chief and eight assistants, all of whom are specialists in the art. This department is as distinct as that of surgery or medicine. The chief is a member of the Medical Advisory Board of the hospital, which is composed of the heads of the various departments. He is also lecturer in anaesthesia in the Faculty of Medicine of the University of Toronto.

As a result of this organization in anaesthesia the student has the advantage of a complete course in every phase of anaesthesia. It is interesting to note here that the department of anaesthesia reaps the benefit of any laboratory experiments in the University of Toronto which may lead to greater safety in the sphere of anaesthesia. During the past year the professor of therapeutics and his assistants have been experimenting with ephedrine, in connexion with blood pressure in anaesthesia, and spinal anaesthesia in particular, and it would appear that this drug has come into a new field of usefulness in raising and sustaining the blood pressure and stimulating the heart action.

But even with such progress we look forward to greater things, and feel that surely it is not too much to hope for the establishment, in the near future, of a Chair of Anaesthesia in every university where medicine is taught.

Records and Safety First.

Having for a time exalted perfection of technique above all else, discounted the laboratory, and left the internist outside the hospital portals, surgery, in its fourth and physiological era, has sensed the necessity for essentials other than sublimated dexterity and intuitive infallibility.

At the 1922 meeting of the Canadian Society of Anaesthetists Dr. William Webster, in his presidential address, made the suggestion that a committee be formed, with Dr. McMechan as chairman, to go into the question of the establishment of a journal to be devoted entirely to anaesthesia, and very soon *Current Researches* replaced the *Bulletin* as the official publication of the previously mentioned society. In 1923 the *British Journal of Anaesthesia* made its appearance in England.

How far can a science advance without the "printed word"? One thinks that it will be generally accepted as a truism that there can be no progress unless it is simultaneously possible to record that progress. That is especially true where those who are interested in that particular science or art are scattered over great areas, and who, for that reason, are unable by close contact to benefit by the knowledge or efforts of other workers. In anaesthesia this is especially so because of the comparatively few practitioners in any given locality. We are, therefore, dependent on print to convey to us what other men are thinking or doing, and a journal is of the greatest importance to record the progress of our art here, there, and everywhere.

Just as it is a contemporaneous *sine qua non*, much of the development of the future is dependent on its character, for not only do the pages reflect the grade of advance of anaesthesia at a given time, but the type of papers and abstracts published represents its teaching value. What is published to-day may contain a seed which the fertile mind of a reader will cause to blossom forth into something of great value. Or it may whet the appetite of some searcher for truth and spur him on to greater activity. Or it may arouse interest in the laggard and convert him into an enthusiast.

A journal has many advantages over a society. It has no limitations of scope. In its workings it may be likened to the "endless chain," for it not only reaches and influences its immediate subscribers, but through libraries and exchanges it goes out to the farthest ends of the earth, and anything that is of value is transferred to other periodicals throughout the world. Anything worth while is eagerly abstracted, and no language which has its own print will fail to pass the good things along.

A journal's usefulness does not end with its power of dissemination. It brings to its readers the ideas and teachings of others. In its abstracts it serves up in more or less digested form the things that are passing through other minds. Every language makes its contribution, and so the output of the whole world of anaesthesia is recorded number by number for the benefit of all and sundry.

It also has an historical value. One must not forget the men who make up the history of anaesthesia. Our art, though comparatively young in years, is none the less rich in accomplishment. It is a duty, therefore, to bring to public notice the pioneers in anaesthesia—those to whom we owe its inception and development. Although, in a measure, they worked in one limited field of surgery, notwithstanding that the major art owes much of its success to their efforts, it is left to journals of anaesthesia to review their trials and adventures. It is of the greatest importance that the works of such pioneers as John Snow, Clover, Joseph Lister, Paul Bert, and Henry Hill Hickman should be brought to the attention of the medical and anaesthetic world; and it is thanks to Dr. Dudley Buxton that the *British Journal of Anaesthesia* has been able to perform this valuable function in England.

While it is deemed to be an essential part of the purpose of a journal of anaesthesia to keep fresh the memory and works of pioneers of the past, we must not overlook those pioneers of modern anaesthesia who are fortunately still with us. We delight to honour them for their labours, and it is felt that we should spread their story broadcast so that it may be possible for active practitioners to profit by their experience as well as to be guided by their example. The anaesthetic world ought to know something of their struggles in working out techniques of practice, in establishing the relative safety of different drugs, as well as something of the story of what must have been a fight to obtain recognition. The pioneers of modern anaesthesia form an important link with the dawn of anaesthesia, and our journals are needed to record the important stories which they alone can give the world.

Finally, a periodical to serve its true purpose to anaesthesia must bear as its stamp the badge of courage as well as enterprise—courage to light up the thoughts of men, and enterprise to find proper ways and means. There are still great fields for exploration, and this needs constant emphasising. Who can prophesy what the future holds for the art of painless surgery? There are many Everests in anaesthesia yet to be scaled, and there are many paths still to be explored. Our journalism must breathe and exhale the air of adventure, for the future calls especially for the type of men who will be unafraid to go into the dark places, if need be, to bring about better and safer anaesthesia.

It is therefore clear that the future of our specialty needs a robust journalism. In *Current Researches* America has now an ideal medium, and, taken with the *British Journal of Anaesthesia*, anaesthetists may rest assured that, with their proper support and encouragement, side by side with the advance of anaesthesia will be found their own publications.

IV.—CHARLES W. MOOTS, B.S., M.D., F.A.C.S.,

Toledo, Ohio, U.S.A.

Co-operation with the Surgeons.

Your description, Mr. President, of the organization of the Department of Anaesthesia in the Toronto General Hospital deserves special mention, apart from the excellent plans you have suggested throughout your discussion on the general topic, "Teaching." A visit to this institution on our way to this meeting easily convinced us of the righteousness of the reputation for leadership which this institution enjoys. It is certainly a far step from conditions existing but a few years since, when it was all too common for the family physician, who probably administered one or two anaesthesias yearly, to accompany the patient to the hospital to make sure that she was safely anaesthetized. It is encouraging to note that a number of hospitals have already fallen in line with the plans of the Toronto General Hospital, and soon there will be a considerably increased number of thoroughly trained medical graduates engaged in the solution of the many intricate problems presenting themselves in the great field of anaesthesia.

As an additional plan for teaching better anaesthesia, may I presume to suggest better organization for opportunities in practical post-graduate work in this field? And as much of our time during the past five years has been given to this endeavour, I will beg your indulgence while offering for your consideration a few of the details.

Being charged with the responsibility of the professional side of the Lucas County Hospital, wherein care is given the indigent cases of both the city and county, as well as the supervision of the surgery in the State Hospital for the Insane, an institution with two thousand beds, it occurred to me that this great wealth of material (2,600 beds) should be placed at the disposal of doctors who might desire advanced work in anaesthesia. As the County Hospital has a well organized staff consisting of thirty-six men of excellent standing in their respective specialties, and well equipped laboratories, an excellent collaboration of data on every case is easily possible. Further, as Dr. McKesson and his associates supervise all anaesthesias in both institutions, we have been able to aid to a considerable extent the many doctors from different lands who show a desire to obtain further experience in the practical administration of the newer gaseous anaesthetics, especially nitrous oxide and ethylene.

A very important part of this plan is to be sure that the entire surgical staff give complete and sympathetic support to the idea of professional anaesthesia. Our surgical staff also understand that it is not necessary to relax the patient to the point of shock in order to accomplish good surgery; that unless they learn to operate under local anaesthesia, as well as under the gaseous general anaesthetic agents, they have not yet acquired the touch of the master surgeon which is so necessary in the protection of the patient.

view remains for the future as it is in the present, and has been in the past, a paramount consideration. Just as the anaesthetists of each generation must be taught their work anew, so, too, the fathers and mothers, sisters and brothers of each generation must be reconvinced of the beneficence of the painless practice of medicine. When all is said and done, a successful profession, like a successful business, is based on the best possible service to the greatest number of people, and anaesthesia will thrive in direct proportion to its satisfied "customers." Physicians themselves are extremely exigeant as patients. Bearing this in mind, we can easily fathom the patient's point of view by putting ourselves in his place and doing by him as we would be done by.

In conclusion, it seems to me that, as anaesthetists, our purposes, aspirations, and vision are encompassed in the motto of the Pacific Coast Association, "It is godlike to relieve pain," and that of the Canadian Society, "We safeguard those who sleep."

II.—WESLEY BOURNE, M.D.,

Montreal.

Fostering Research in Anaesthesia.

The spirit of investigation has always been nearly peculiar to mankind, and therefore research is by no means new, not only with respect to anaesthesia, but also with all other human activities. Research zeal has been particularly keen in recent times, and it is common knowledge that considerable light has been thrown on some of our propositions. As examples I need only make mention of the advances in obstetrical anaesthesia, in insufflation methods, in the many methods of administering anaesthetics generally, the successful employment of the newer gases, our knowledge of the acidosis of anaesthesia, of heat regulation and water exchange, the technicalities of the procedures of regional anaesthesia, the uses of carbon dioxide, of alpha-lobelin, and the borocaines. Just now have come the results of some work done in the Department of Pharmacology of McGill University on the effects of certain compounds on respiration, blood pressure, and recovery when known quantities are added to pure anaesthetic ether.

Acetaldehyde.

In the case of acetaldehyde, with concentrations up to 1/2 per cent. respiration was not significantly affected; with 1 per cent. or more the breathing became embarrassed, audibly, visibly, and as shown by tracings. The blood pressure was not affected significantly even though the mixture was administered for as much as three hours. It may therefore be concluded that such percentages of acetaldehyde as may occur in old or improperly prepared ether—that is, less than 1 per cent.—do not affect respiration, blood pressure, and recovery to any appreciable extent even when administered for an unusually long time.

Ether Peroxide.

With ether peroxide it was found that with a concentration of 0.5 per cent., or greater, definite effects occurred even after short periods of administration. When the anaesthesia was prolonged these were more marked. Respiratory embarrassment developed, and there was a decided fall in blood pressure. In one instance the heart stopped permanently after one hour of administration. When the percentages were less than 0.5 the effects were negligible. With higher concentrations the depression of blood pressure was extreme. It may be concluded, then, that ether peroxide in ether is only harmful when the concentration approaches 0.5 per cent.

Sulphur Compounds.

In the usual method of making ethyl ether side reactions with the production of ethyl sulphide and ethyl mercaptan are conceivable. Both of these substances possess very strong and disagreeable odours, which are detectable when very small amounts are contained in ether. This is particularly the case with the mercaptan, and yet when this impurity is present to the extent of 1 per cent. it does not materially affect the animal after a period of three hours.

With ethyl sulphide the story is different. When 1 per cent. was employed breathing and blood pressure were both markedly changed. On stopping the anaesthesia there was evidence of good recovery, and yet twelve hours later the dog died after a most severe gastro-enteritis. With smaller concentrations the effects were nugatory even to the extent of three-tenths of 1 per cent. These sulphur compounds, then, do not act alike. Ethyl mercaptan, although a most "Augean" material, does not have much influence when present up to 1 per cent. Ethyl sulphide in 1 per cent. concentration produces an extremely severe gastro-enteritis. With three-tenths of 1 per cent. or less no such effect is caused, and the blood pressure and respiration are not altered.

Ketones.

The ketones—acetone, ethyl, methyl, and di-ethyl up to 5 per cent.—did not cause any disturbances worthy of consideration. That these substances are indifferent is clear.

One more instance of the fostering of research comes from the laboratory of pharmacology of McGill University as a corollary of previous works on blood concentration and body temperature in anaesthesia. It may be remembered that an animal under the influence of ether maintains its normal body temperature only when that of the surroundings is very considerably increased (87.8° F.); irrespective of environmental conditions blood concentration occurs. This may be prevented by the use of water or hypotonic solutions, but now, in spite of the previous determined optimum of environmental conditions, the body temperature falls. It was then discovered that with a further elevation of the room temperature (91.4° F.), and with the administration of fluids, there result negligible changes in either body temperature or blood solids.

Morphine, given prior to ether, protects the animal against blood concentration. This fact fits in well with some of the findings in another field of investigation at present being explored by Professor Stehle and myself; in effect, morphine prevents the oliguria or anuria caused by ether.

Now, as it is impracticable for one to work in such temperatures as approach those mentioned, it is quite out of the question for us to have our operating rooms much warmer than they ordinarily are, and as all other methods of maintaining body temperature are rather difficult of control, diathermy was tried. The initial depression of body temperature after ether was followed by a rise to one above the normal after 800 to 1,000 milliamperes. No decided effect on blood concentration was produced by the use of diathermy. When the current was applied before etherization the body temperature was readily increased. Finally, it was found that the ordinary acidosis of anaesthesia was not interfered with by changes in body temperature.

III.—H. M. COHEN, M.R.C.S., L.R.C.P.Lond.,

Editor, *British Journal of Anaesthesia.*

Journals, Current Literature, Year Book.

We have our colleagues in the United States and Canada to thank for the establishment of the first regular periodical for anaesthetic literature, which is the now well known *Current Researches in Anesthesia and Analgesia.* However, the genesis may well be placed as far back as Morton's *Circular*, which that unfortunate world benefactor commenced to issue in 1847 and continued at irregular intervals and at his own expense. This *Circular* was the medium in which Dr. Morton published the various experiments of etherization, and it marks the various stages of his fight to establish his claims. At first it appeared almost weekly in the form of a letter of advice, but as its contents increased it was found necessary to enlarge it to four sheets of fine print. Soon the *Circular* grew into a full-sized magazine containing arguments against his opponents, and one issue actually contained nearly one hundred closely printed pages.

The *American Journal of Surgery's Quarterly Supplement of Anesthesia*, now abandoned, which was edited by Dr. F. H. McMechan, for many years held the entire field, with the exception of the *Bulletin* of the National Anaesthesia Research Society.

The treatment that seems to have given success in these cases is as follows:

During the attack: Hypodermic injections of morphine and atropine and digitalin; hot mustard foot-bath. A repetition of the atrophine in half an hour if no marked improvement has occurred. Recourse to bleeding in very severe cases in which the above treatment is failing.

Between attacks: Oxygen on the first sign of recurrence; bromide and digitalis in a mixture; chloral and bromide at nights; leeches applied over the liver. General attention to state of bowels and stomach, and removal of septic teeth, etc.

An interesting point is that in none of the three cases was there any general oedema and none of them had rheumatic hearts.

Arlesey, Beds. W. W. MacNaught, M.B., Ch.B.

The case of acute pulmonary oedema reported by Dr. M. Cohen (British Medical Journal, March 20th, p. 528) is of especial interest as his patient was a young man. In my experience the usual type of patient is an elderly person with marked arterio-sclerosis and raised blood pressure. The cause of acute pulmonary oedema seems to me an acute failure of the cardiac action or some vasomotor disturbance. The following cases will illustrate this view.

Case I.

A married woman, aged 74, had been under my care for the past five years. She was suffering from valvular disease of the heart with arrhythmia and extra-systoles. She never showed any signs of decompensation, being a very active woman. She had marked arterio-sclerosis, her systolic blood pressure being 180–200 and diastolic 100–110. Her urine contained traces of albumin, the specific gravity being 1012–1016. She was highly myopic, but apart from that the fundus of both eyes was arterio-sclerotic only. So it was a definite case of essential hyperpiesia. Suddenly one night last winter, being in comparatively good health, she developed an attack of acute pulmonary oedema. When I arrived another doctor was already present. The patient was semiconscious, sitting up in bed, pale and cyanotic, with a rapid pulse; systolic blood pressure 120 and diastolic 90. Coarse moist râles were audible all over the chest, and a little froth came from her mouth. After a brief consultation we decided on a liberal venesection from both arms; strophanthin and atropine were injected, followed later by 1/2 c.cm. of pituitrin. The patient still being very distressed a small amount of morphine was injected. Then we left her. Nine hours later we saw her again. She had had a few hours of good sleep, her blood pressure was raised to 140, she was more comfortable and obviously improved. In the urine albumin was present in considerable amount. In five days her blood pressure returned to 180, and she made an uninterrupted recovery. The albumin was gradually reduced to traces only with the rising of the blood pressure. Two months after, again at night, she had another attack with the same symptoms. The same treatment was applied and she was better again in the morning. But her blood pressure rose only to 140, and she complained of severe retrosternal pain, although the heart was not much enlarged by percussion. She was sleepless for three nights. A consultant was called in three days after the night attack, and advised the injection of 1/4 grain of morphine, with strophanthin and atropine. A few hours later she died. It was, in my opinion, a case of acute pulmonary oedema following the hyperpiesial crisis of B. Shaw. Pituitary extract seemed to me the most helpful drug in this case.

Case II.

I was called urgently to see a woman of about 70 whom I had not seen previously. She had marked arterio-sclerosis, systolic blood pressure 220 and diastolic 110. Diagnosis: Acute pulmonary oedema, full consciousness being present. Treatment: Liberal venesection, pituitrin and atropine. Next day the blood pressure had dropped to 180 systolic and 100 diastolic. The pulmonary oedema passed away, but she developed a severe attack of bronchial asthma, which caused anxiety for a few days and subsided in fourteen days. I was under the impression that in this case the pulmonary oedema was caused by a vasomotor disturbance which produced later the attack of bronchial asthma.

London, E.1. N. Pines.

The following case occurred at Charing Cross Hospital, in August, 1925, when I was house-surgeon to Mr. L. R. Broster.

A woman, aged 42, who had had the right breast removed on the previous day, suddenly developed intense dyspnoea and cyanosis, and frothy blood-stained fluid escaped from the mouth and nostrils. Death occurred within a few minutes, an injection of camphor in oil having no effect.

The *post-mortem* examination showed that no large blood vessel had been opened at the operation, and apart from the left lung all the organs were healthy. That lung was extremely oedematous, blood-stained fluid pouring off the cut surface; it weighed 18 oz., as against 14 oz. for the right lung. There was no sign of embolism of the pulmonary vessels.

This condition of unilateral pulmonary oedema is sufficiently uncommon to justify a record.

Harold Awrounin, M.R.C.S., L.R.C.P.

Leyton, Essex.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

MENINGITIS AND ENCEPHALITIS DUE TO FOREIGN BODY IN THE CAVERNOUS SINUS.

It would appear that in the following case a piece of wood must have entered the orbit through the upper eyelid when the woman fell. Guided by the bony roof of the orbit the wood must have lodged in the cavernous sinus and broken off, obvious signs of injury disappearing owing to the elasticity of the skin of the eyelid causing it to resume its normal position.

A woman, aged 55, fell and struck her head against some wood outside her cottage door on the evening of July 19th. She was found by her husband a few minutes later and put to bed. Her doctor was called to see her in the morning and said she was suffering from concussion.

On July 23rd she was admitted to the Kent and Canterbury Hospital owing to the condition of the right eye. She had then recovered from the concussion. The right eye was proptosed downwards and forwards. The upper eyelid had a brownish appearance and was slightly oedematous; about its middle was a small graze less than 5 cm. in length which appeared to have involved not more than the superficial layers of the skin. There was no voluntary ocular movement. Examination with the retinoscope showed nothing abnormal within the eye; the temperature was slightly raised.

Two days later the local swelling and oedema, which was never very marked, had disappeared, and the eye could be pushed back into the orbit until it had nearly assumed its normal position. At the same time a curious crepitation could be felt transmitted through the eyeball. *X*-ray examination of the skull showed no bony lesion.

During the next week the patient became very drowsy and unable to concentrate her attention for any considerable length of time. The temperature chart showed an intermittent fever; the temperature rose to 101° on several occasions. On August 3rd an orbital abscess was diagnosed, and pus was obtained on exploring the orbit above the eyeball. Under a general anaesthetic an abscess the size of a walnut was found, opened, and drained. This, however, produced little effect upon her general condition. On August 6th there was a secondary haemorrhage through the drainage tube saturating the dressings. During the afternoon of August 7th the patient suddenly screamed and jumped out of bed; she died during the evening of the following day (August 8th).

Post-mortem Examination.—Acute pyogenic meningitis and encephalitis were found with an acute abscess in the right temporal lobe, communicating with the lateral ventricle, which also contained pus. Most of the substance of the right cerebral hemisphere appeared to be acutely inflamed. On removing the brain six small pieces of wood, the longest being 1.5 by 0.5 by 0.3 cm., were found inside the right cavernous sinus. It could be clearly seen that the infection had entered the cranium through the right orbital fissure. No bony injury was discovered. The eyeball was found intact, while the orbital abscess had been successfully drained.

The small healed wound seen when the patient was admitted to the hospital was the point at which the foreign body had entered. It is probable that the sudden alarm which she experienced the day before she died was due to abscess in the temporal lobe bursting into the lateral ventricle.

I should like to thank Mr. E. D. Whitehead Reid and Dr. J. A. Pringle for permission to publish these notes, and Dr. H. N. Seymour-Isaacs for assisting me at the *post-mortem* examination.

London, W. J. F. L. King.

PYLOROSPASM DUE TO HELMINTHS.

The following case seems of sufficient interest to be placed on record:

An Indian, aged 43, on December 5th, 1925, at 6 p.m., was seized with acute spasmodic pain in the epigastrium and sensations of dragging from the sides to the centre of the chest. He was intensely nauseated, but did not vomit. The pulse was 96, and the temperature 97.2°. The epigastrium was acutely tender and distended. The stomach resonance was high. The bowels had last been opened by a pill on December 4th.

Terebene (ℳ v) given by the mouth was followed by the passage of flatus. Mindful of a similar case, I injected morphine 1/4 grain. Relief was prompt, and the epigastrium became less tender and presented a tense swelling on the left of the middle line. I gave 1½ oz. of castor oil.

By the next morning he had passed nothing. The pains were returning and the swelling was greater. Castor oil was given again. At noon a motion was passed containing ova of ankylostoma, of *Ascaris lumbricoides*, and of *Trichuris trichiura*. He vomited a quantity of semi-digested rice, castor oil, and mucus. He had not swallowed rice for forty-eight hours. The epigastric swelling vanished and there was no pain. After anthelmintic treatment he passed numerous ankylostomes and six ascarids. He has been under observation ever since and is still well (September 14th).

Singapore. M. J. Rattray, M.R.C.S., L.R.C.P.

While the plan thus briefly outlined may not be unusual or final, I believe that if a greater proportion of the leading hospitals will follow some such well defined plan it will give to the profession an impetus that must result in establishing the "future of anaesthesia" in its logical relationship to the other departments of our profession.

GENERAL DISCUSSION.

Dr. A. L. Flemming (Bristol), who had acted as chairman while Dr. Johnston read the opening paper, said that the President had touched on very vital points. The barriers between the various clinical departments at the hospitals were breaking down, which was a good sign, but in the universities this was not the case yet, a fact which he deplored. A great improvement to be noticed was the closer relation nowadays between anaesthetists, both individual and national. The establishment of the Anaesthetic Exchange in Manchester was a milestone in the history of British anaesthesia. As regards the teaching of anaesthetics, what was necessary was the elimination of chance and art in favour of certainty and science. From the point of view of the public the sooner an art could be turned into a science the better, though the time was not yet when the art could be entirely overlooked. He stressed the necessity of the preliminary teaching of anaesthetic drugs being given by the chemist and not by the anaesthetist. An anaesthetic research committee should be established at every teaching centre and university, and be run by collaboration between the physicist, chemist, biochemist, surgeon, and anaesthetist. The ease with which open ether could be administered took away the interest of the student from anaesthetics, which was a pity. He was glad to note that the collaboration between the surgeon and the anaesthetist had increased of recent years.

Dr. R. E. Apperly (London) queried the effects of aldehyde; the recovery showed irregularity of breathing accompanied by struggling. With minute traces of aldehyde there was sickness and struggling in the case of patients during recovery. Co-operation between the surgeon and the anaesthetist was most necessary in local and regional anaesthesia.

Dr. F. H. McMechan (Avon Lake, Ohio) was glad that water-tight compartments had been broken down since anaesthesia had become necessary for research work. Experimenters had thus become converts to association with anaesthetists. The prevention of avoidable deaths on the table must be supplemented by the abolition of unnecessary deaths during the following seventy-two hours. As regards teaching, even the best anaesthetists were limited to certain technical performances. The patient had good surgery and good anaesthesia, but often lacked good doctoring later. The anaesthetist should dominate the preparation of the patient, the patient himself during induction and maintenance of the anaesthetic, and the after-treatment during the post-operative period. The surgeon would thereby be relieved of much work for which he had neither the time nor the training to accomplish with satisfaction.

Dr. S. R. Wilson (Manchester) wished to stress the value of the printed word, as in his opinion the advances made during the last century had been due to this. Meetings also had their value, and he strongly advised anaesthetists to attend and put up with any financial loss incurred. As regards the physician in relation to anaesthesia, any shortcomings in the advice given by the physician must be attributed to the physician and not to the anaesthetic. The physician must take into account not only the systolic pressure but the diastolic, which was the more important. His experience with students and open ether was at variance with Dr. Flemming's. The students were, if anything, too inquisitive.

The President, in reply, said that art could not be taught, for it was inherent in the individual; science wedded to art made the perfect anaesthetist. Pharmacology and chemistry should be taught in the other departments, and the anaesthetist should confine himself to teaching his students to give anaesthetics safely and comfortably. There was a great difference between a condition of anaesthesia and a condition in which the patient was practically dead to the world. Even under open ether shock and loss of blood might cause death. In collaboration with another worker Dr. Bourne had produced an ether free from impurities, and this could be given to produce an anaesthesia with little or no after-vomiting. The work of Dr. Moots and Dr. McKesson was of the utmost value. Dr. Apperly was right in stressing the value of regional anaesthesia; the trouble was that it had been wrongly applied, as, for instance, in the case of toxic goitres.

ACUTE SUFFOCATIVE PULMONARY OEDEMA.

The following three cases may be added to those reported in the Journal during the last few months:

Case I.

Nine weeks ago I was called in the middle of the night to see a patient whom I had been treating on account of double aortic and mitral systolic murmurs. He was sitting up on the side of the bed supported on either side. His face was pallid and grey and a cold perspiration was running down his cheeks and neck. All skin surfaces were cold and clammy. He was breathing in short sharp gasps, using all the muscles of forced respiration. He had a frequent cough and each time brought up pink frothy fluid. His pulse was almost uncountable, feeble but regular. His whole aspect was that of a man about to die—a typical attack of acute suffocative pulmonary oedema. While a hot mustard foot-bath was being prepared he was given a hypodermic injection of morphine gr. 1/3 and atropine gr. 1/120, and a few minutes later one of digitalin, gr. 1/100. In a little more than half an hour he was sitting propped up in bed, breathing easily. His pulse rate had dropped to 80, and his skin was dry and warm. On this occasion some blood was also taken from the median basilic vein. Amyl nitrite inhalation seemed to have no effect.

Within the same week he had three other attacks similar in character and all occurring at night, but on each occasion easily controlled by a hypodermic injection of morphine gr. 1/3, atropine sulphate gr. 1/120. A few days later he had a fifth attack, but this occurred in the daytime. He was then given nightly doses of chloral hydrate gr. 30 and ammon. bromide gr. 30, and leeches were applied to the right costal margin over the liver. He was also given a mixture containing bromide and digitalis as a routine during the day.

For seven weeks he was free from attacks and had been allowed up daily in his room for two hours during the latter part of this time. For a week or ten days his nightly sleeping draught had been at first diminished and then left off without any interference with his sleep.

Suddenly, two nights ago, after he had been some time in bed, an attack started; and, in his own words, he first felt a tightness in his chest, he then came over hot and commenced to cough, and in ten minutes he was in the full blast of an acute suffocative attack. He was given morphine and atropine with digitalin as before, but as half an hour later improvement was only slight atropine alone (gr. 1/100) was repeated, and after another half-hour he was comfortable in bed, with a normal pulse, breathing easily, and able to talk and laugh.

He fell asleep a little later and had a good night and was breathing normally the following morning. This attack—his sixth—was the worst.

He states that in the interval just mentioned he found that the attack seemed to be warded off by inhaling oxygen on the first sensation of any tightness in the chest. Whether an attack would have developed without the oxygen is doubtful. At any rate it inspired him with confidence.

Case II.

Within a week of the first attack in the case just recorded, I was called at 2 a.m. to see a similar case in the same village. This patient, however, had no cardiac murmur, but the auricle was fibrillating. A hypodermic injection of morphine and atropine and one of digitalin very soon cleared up this man's attack, and since then he has not had a recurrence.

Case III.

About eighteen months ago I saw a third case—a severe one—but as this man was known to have albuminuria a hypodermic injection of atropine and digitalin alone was given, without the morphine, and good recovery was also obtained.

It would appear that this condition is not a rare one, but one which a general practitioner is liable to meet at any time. Its onset is exceedingly sudden, and very little warning is given of its advent. Only in my first case did the patient seem to have lost consciousness during the whole attack, and this was only evidenced by the fact that he did not know of the second injection of atropine.

province. The ancient faith of China did nothing to alleviate the myriad plagues of that vast territory; all the creeds of India—amongst them Buddhism, which possesses much that is attractive—failed to show how cholera could be mastered and malaria subdued. Christianity, with all its virtues, for hundreds of years coexisted with a great burden of communicable maladies. It was not until, in the fullness of time, scientific knowledge was applied to the prevention of disease that we gained our freedom from the fear of small-pox and of typhus and that you Americans were able to sweep yellow fever out of the New World.

The old, wise Greeks knew what they were about when they worshipped the goddess Hygeia and made her votive offerings. I am inclined to think that in some countries, such as India, hygiene will never exercise its full sway unless it comes to the people in the form of a religion, a new revelation to save and succour a vast multitude, the prey of superstition and disease. I believe that to-day you are opening and consecrating not a school only but a temple, a shrine with infinite possibilities.

Leaving the ancients out of the question and pioneers like Mead and Jenner, the credit for initiating the campaign which has had such remarkable results is due neither to the votaries of religion nor those of medicine, for it was a layman and a lawyer, Edwin Chadwick, who devoted all his time and gifts and energies to the realization of this ideal. Similarly in the United States it was Lemuel Shattuck, who was neither a divine nor a physician, but a student of social problems, who played the part of a pioneer.

There are, I think, three other factors which may be termed "world forces," and with which hygiene may, nay must, be compared: the pursuit of pleasure, the pursuit of wealth, and the pursuit of knowledge. All these, though in very different ways, have exerted a great influence on man and his affairs. No one, however, would place either the pursuit of pleasure or the pursuit of wealth in the same class with hygiene as a controlling force in human destiny. The influence of both is evanescent compared with that of hygiene, and too often is not in the direction of progress and true comfort. The pursuit of knowledge is in a different category. It has been a great and cardinal force, and might well contend with hygiene as a benefactor of mankind were it not that the art and science of hygiene have arisen from this pursuit and that hygiene, being the application of knowledge to man's needs, has outstripped it. The pursuit of food, at the call of hunger, has from the beginning been a world force, but, inasmuch as it is, in certain directions, a hygienic activity, it need scarcely come into our comparative list.

World Hygiene To-day.

And now let us see how, at the present time, hygiene acts as a world force. It does so in various ways. One is by the great system of quarantine, with its stations scattered over the globe and its control of ships and shipping. It is of interest to note that the first Quarantine Act was passed by the General Assembly of Pennsylvania in 1700, and was quaintly entitled "An Act to prevent sickly vessels coming into this Government." Hygiene has always had a close association with the sea and ships. It has abolished two great sea scourges, scurvy and ship beri-beri; it has radically changed life afloat, so far as navies are concerned; and now, at long last, it has commenced to take the merchant seamen under its wing. In this respect I must sorrowfully confess that the American mercantile marine is ahead of that of Great Britain. Speaking generally, you house and feed your sailors better than we do. This is a reproach we, an old seafaring nation, are now taking steps to wipe out, and if only the control can pass from the Board of Trade to the Ministry of Health, much may be accomplished.

Most unprejudiced persons will, I think, admit that, taken all in all, the British Empire has been a power for good in the world; and its sons, throughout the long years, have done much to make hygiene a world force. The traditions of the homeland have been carried overseas, and some of the great dominions, favoured perhaps by local conditions, have, in certain directions, progressed further than the mother country. New Zealand has the lowest infantile mortality in the world; Australia has probably the most complete and best organized quarantine system on the face of the globe; South Africa has done more to prevent and stamp out disease amongst miners than has any other land; Canada, closely in touch with the vast public health developments in the United States, has in some ways more than held its own. For example, I believe the milk supply of Toronto, under the fostering care of Dr. Charles Hastings, will compare favourably with that of any other city. The Indian Empire, with its fine record of research in tropical medicine and hygiene—a record reaching back more than a century and containing the crowning triumph of Sir Ronald Ross, based on the reasoning of Sir Patrick Manson—has, it is true, failed to apply, as it might have done, all the lessons that research has taught, but its task is a stupendous one. It is something to have furnished great cities like Calcutta and Bombay with active sanitary organizations, to hold cholera in check, to grapple successfully with leprosy, to indicate the method whereby kala-azar may be controlled, to rob enteric fever of its terrors, to alter the whole outlook as regards amoebic dysentery and liver abscess, to cope manfully with the grim spectre of famine. In Malaya Sir Malcolm Watson and others have accomplished a great work in reducing malaria and rendering estate labour healthy. Hong-Kong has changed from a pestiferous hole to a comparatively healthy seaport. Singapore and Colombo have carried out important sewage and water works and taken elaborate steps to guard themselves against imported infection. In Palestine a revolution has been effected since the war, and there is not a single branch of public health which has not received some attention there at the hands of a small but devoted band of workers. The east coast of Africa, from Uganda and Kenya in the north to the Rhodesias in the south, has been the scene of active operations, and I would cite especially the campaign against syphilis in Uganda, that against yaws in Kenya, the war on the tsetse fly in Tanganyika, and the determined attack on malaria and blackwater fever in Southern Rhodesia. On the west coast, once the white man's grave, a great change has taken place, and, although there is much yet to be accomplished, notably in the case of yellow fever, where valuable help is being rendered by American experts, life is now very different, both for the white man and the black, all the way from the Gambia to Southern Nigeria, than it was when that intrepid woman Mary Kingsley sent out her clarion call for action. There remains the Anglo-Egyptian Sudan, a greatly changed territory now from what it was in the days of the Mahdi and the Khalifa. Turning to the New World, the British record is not so good, but we can point with some satisfaction to important advances in British Guiana and with a reasonable pride to what has been done in Port of Spain, while here and there elsewhere the torch of hygiene has been kept alight, even if it glows but dully.

France, ever to the fore in questions scientific, has greatly ameliorated conditions in the vast territories under the tricolour. Her work on malaria in Northern Africa has been remarkable, in French equatoria sleeping sickness has been relentlessly pursued, in Madagascar plague has been combated to good effect, while in French Indo-China much has been done in the way of safeguarding the public health. The Dutch, with a passion for cleanliness bred in their bones, have displayed qualities of great thoroughness and persistence in coping with difficult situations in Java and Sumatra. The way they have tackled plague is an example for other countries to follow; they have solved important problems relating to the manufacture of vaccine lymph in the tropics; and, recognizing that hygiene pays, and pays handsomely, they have spent great sums in improving the housing and living conditions of the coolies on their fine rubber and cinchona estates.

The Germans have been shorn of their overseas possessions, but German influence and work continue to keep hygiene a world force and to increase its efficiency, more especially perhaps by shedding fresh light on the various sciences upon which hygiene and sanitation are securely

HYGIENE AS A WORLD FORCE.

Address at the Opening of the new School of Hygiene of the Johns Hopkins University, Baltimore, on October 22nd, 1926,

BY

ANDREW BALFOUR, C.B., C.M.G., M.D., LL.D., F.R.C.P.Ed.

[*Abridged.*]

My first duty is to thank most sincerely the authorities of the Johns Hopkins University for the great honour they have done me in asking me to deliver an address upon such an auspicious and important occasion. It would have been very easy for them to find on this side of the Atlantic someone well fitted to perform the task and far more in touch with the great march of public health in the United States; someone also with a more extensive knowledge of hygiene as now practised and developed in countries with temperate climates, for many years of my working life were spent in a land where public health work was in its infancy. It is only since taking up residence in England, and especially since my association with that undertaking which, in large measure, owes its inception and progress to the beneficent generosity of the Rockefeller Foundation, that I have had opportunities of becoming intimately acquainted with those modern movements which have wrought so great a change in the domain of State medicine.

A study of hygiene in England, and particularly of the history of hygiene, has, however, shown me why, in all probability, those responsible desired to have a speaker from that country. England is undoubtedly the cradle of modern hygiene—that is to say, it was in England that the principles and practice of hygiene were first properly developed and placed on a sound administrative basis. Thus other nations have acquired the habit of looking upon England as a leader in the great campaign against disease and death. This habit, flattering to the old country—and the term "old country" includes Scotland, Ireland, and Wales—was undoubtedly justifiable in the early days of public health, and I trust may still be looked upon as wise and salutary, even though the old country has now much to learn from other lands, more especially from this great and wealthy Republic of the West. On the other side of the Atlantic we are perhaps a little apt to forget that America has public health traditions of considerable antiquity, and that, if England is a cradle of hygiene, the United States is indubitably a baby's cot. It could not well be otherwise. Long ago New York was Dutch, and the stout burghers from Holland reached the New World with a great tradition behind them of personal and domestic cleanliness. The Dutch who settled in New York doubtless practised those habits of cleanliness in which they had been reared, and their influence cannot have wholly vanished even when New York, foul, crowded, and unhealthy, had become "The City that Was," so graphically portrayed by Dr. Stephen Smith. Personal cleanliness and cleanliness of the home meant much, but hygiene became a living force only when it extended from the individual to the community, when it became an affair of government, both local and central, and when the aid and majesty of the law were invoked on its behalf. Strange to say, of late years the pendulum has swung back in the old direction, and environment, at one time all-important, is now seen in its proper perspective, while the health of the individual has become a matter of primary importance to the State and to all who have the well-being of mankind at heart.

To-day, in the brief space available, I wish to consider hygiene as a world force, as one of the great factors which have influenced human life and activity, and as possibly the greatest factor which will influence man's progress in the future. To do so, it is necessary to institute a few comparisons.

Religion and Hygiene.

While any general comparison of religion in the abstract with hygiene also in the abstract would serve no good purpose, I cannot refrain from contrasting the influence of applied hygiene with that of the application of religious principles in human life and work; in other words, with organized religion, whether such takes the form of Christianity, Judaism, Mohammedanism, Buddhism, the faith of Confucius, or any of the other creeds which have helped man along the thorny path of existence and guided him, in some measure, through its trials and difficulties. The practice of these beliefs has, of course, had a profound influence upon the world. I think it possible, however, that the hygiene instinct, apparent in some animals be it noted, preceded the religious instinct, and that, even at the present time, the influence of the former is more universal. There are many to whom religion makes no appeal; there are a few races of mankind which appear to be wholly devoid of any religious instinct, but even the most primitive, the most debased, practise certain laws of health. These are essential for life and procreation, and the two ideas which dominate every type of man are those which control the animal world of which he is a part: love of life and the desire for reproduction.

It is instructive to note that some forms of religion had, and still have, a hygienic basis. Rites of purity and certain forms of exercise are, to this day, closely associated with religious observances. Both Moses and Mohammed were hygienists of no mean order. The best features of some faiths are those which relate to the care of the body and the prevention of disease. In India the great system of caste following the institutes of Vishnu and the code of Manu brought the teeming millions of the peninsula some measure of sanitary salvation, while the creeds themselves did little to raise or elevate the masses.

In the hands of man religion playing the part of a world force has unhappily often produced turmoil and bloodshed. On the other hand, hygiene as a world force is a power for peace. Health and its promotion are subjects which sensible men—I say sensible, for we must exclude cranks—can discuss without acerbity and bitterness. I venture to think that the Health Section of the League of Nations is likely to prove the most constructive and most successful part of the great Geneva organization designed to precipitate the millennium. In public health work and propaganda jealousy takes the form of a healthy rivalry. You may envy your neighbour's health record, but there is no sense in being jealous of him because his infantile mortality rate is much lower than yours. The revelation merely stimulates you to further effort, and it is almost inconceivable that nations should go to war in the race to be the fittest, as they do when it is a question of riches or power or *amour propre*, or (in the old days) religion, or self-defence. Yet curiously enough this fitness brings wealth and perhaps power with it, and is a very excellent form of self-protection. I am quite sure that, if the International Health Board of the Rockefeller Foundation had not the world "Health" in its title, its manifold activities would never have been received with complacency and gratitude by countries not owing allegiance to the Stars and Stripes.

It is true that, in certain directions, organized religion has played a part comparable to that of hygiene in moulding man's destinies, though it is also true that at times it has been the bitter foe of progress and enlightenment. Christianity throughout the dark Middle Ages kept alight here and there the torch of knowledge. We recall the stimulus to thought and inquiry engendered by the Reformation in Europe, but, as a rule, when it has signally influenced progress the effect has been due rather to a spiritual movement as, for example, the awakening of a spirit of sympathy with the sick and, as Dr. Welch has pointed out, the development of that new humanity which paved the way for the work of the sanitary reformers in England, rather than any deliberate campaign by a religious body. Religious organizations were in being in various parts of the world for many hundreds or thousands of years without any serious attention being paid towards the betterment of life and working conditions. It is true that Judaism, the creed of Mohammed, and certain other faiths did lay stress on the practice of preventive medicine, but it seems to me that none can equal in this or other fields what hygiene has accomplished in a remarkably short space of time, achievements which have wrought amazing changes in many parts of the globe and brought about a veritable revolution. It is too much to expect that organized religion could conquer disease: that is not its

a frequent brownish-green vomit and incontinence of faeces. She died at 10.55 a.m., three days and five hours after delivery.

At the *post-mortem* examination, seven hours after death, the subcutaneous fat of the abdominal wall was found to be fully three to four inches thick, which must have made accurate diagnosis of the abdominal condition during life extremely difficult. The peritoneal cavity contained about six pints of a turbid and slightly blood-stained fluid, smelling strongly of urine, and containing large flakes of recent fibrin. The intestines were distended to about double their normal size, and the peritoneal coat injected. A small oval perforation, which would just admit the points of a Spencer-Wells forceps, and the edges of which were gangrenous, was discovered on the posterior surface of the bladder, about midway between the fundus and the utero-vesical reflection, and half an inch from the mid-line. Radiating from the hole were three rents, involving the serous and muscular coats, but not the mucous membrane. On slitting open the bladder from the front, the perforation was seen to be surrounded by an area containing numerous small haemorrhages. Apart from this the lining epithelium appeared to be normal, as were also the ureters and their orifices. The kidneys and other organs showed no evidence of disease. The uterus was uninjured, except for a deep right-sided cervical tear. The cause of death in this case was undoubtedly rupture of the bladder followed by peritonitis.

Miss Duvall said that this type of accident must be very unusual, as after a good deal of search she had only found two cases recorded, in which intraperitoneal rupture occurred actually during the course of full-term labour. The first of these was a Liverpool case, reported to this society at Manchester in 1905 by Dr. Grimsdale, and afterwards published in the *Journal of Obstetrics and Gynaecology*, vol. vi, 1, p. 354. The second was in 1908 by C. P. Porter in the *Transactions of the Obstetrical Society of London*, vol. 49, p. 171. Both these cases presented many similar features to this one—namely, the patients were primigravidae with no pelvic contraction and no definite history of urinary disease. Both had instrumental deliveries, and in both the rupture was situated, as in the case reported by Miss Duvall, on the postero-superior wall of the bladder; it was considered by the authors to have been spontaneous, and to have occurred prior to the application of forceps. In Miss Duvall's case there was no clinical evidence of pre-existing urinary disease, and the naked eye and microscopical examination of the urinary organs was in accordance with the history. With the exception of the bruised area around the perforation, the lining of the bladder appeared normal. Professor Glynn considered at the *post-mortem* examination that the wall, however, was somewhat thinner than normal. The thickness of the muscular and mucous coats empty measured just over 2 mm.; the normal measurement was 6.8 mm. Had there been cystitis it would have been visible in the trigonal area, which was obviously quite free from disease. The microscopical section taken from the uninjured portion of the bladder showed no pathological condition except some congestion of the submucous vessels; the absence of epithelium could not be adduced as evidence of disease, and had occurred in a control specimen subjected to similar *post-mortem* conditions and methods of preparation. The section taken from the bruised area simply showed a recent extravasation of blood throughout all the layers; it was, in fact, the picture of a bruise. The muscle was not diseased, and there was no inflammation. The situation of the lesion made direct injury by the forceps unlikely. In a primigravida, at any rate, this portion of the bladder would have been in the abdomen. The presence of distension at any time during the labour was not shown in the history, but the first stage was prolonged, and the patient might not have been properly emptying the bladder throughout. She was so fat that distension, if present, would not have been observed. Evidence of the time of rupture was afforded by the gangrenous edges of the perforation and the degree of peritonitis found at the *post-mortem* examination. In view of the fact that the urine was certainly not grossly infected, acute peritonitis would not follow very soon after the rupture. The chart was also consistent with an ingravescent sepsis. The amount of urine obtained after delivery was only 22 oz. in three days. A curious point was the ability shown by the patient on two and possibly three occasions to pass urine voluntarily, presumably after rupture; but in view of the very small leak this was not to be considered an impossibility. Lastly, there was the history of the cry uttered by the patient three hours before delivery, followed by the complaint of acute abdominal pain. All these facts seemed to point to the rupture having occurred prior to or at the time of delivery, the cause being increased intra-abdominal pressure due to the pains of labour on a bladder probably overdistended, and therefore weakened, but certainly not otherwise diseased.

An Eight Months' Abdominal Pregnancy.

Dr. J. W. A. HUNTER (Manchester) gave an account of a case of abdominal pregnancy which lasted eight months. The clinical history was as follows.

A married woman, aged 30, was admitted to hospital on August 23rd. Her last menstrual period had been on March 16th, and was followed by several weeks of irregular bleeding for which she was curetted, a diagnosis of incomplete abortion having been made. After curettage the bleeding ceased, and she was sent home, but shortly afterwards she noticed a gradual increase in the size of the abdomen. About the beginning of July she had a sudden attack of acute pain in the abdomen with sudden enlargement of the swelling, and accompanying the pain were recurrent attacks of vomiting and faintness. During the six weeks before admission there was progressive abdominal enlargement, with increasing tenderness and recurrent attacks of severe abdominal pain, often accompanied by vomiting. Six days before admission there was slight loss of blood from the vagina. Beyond these, increasing frequency of micturition and gradually increasing constipation were the only symptoms of which she complained. On admission she was rather pale, collapsed, and obviously in considerable pain. Her pulse was small and rapid, the rate varying between 120 and 140; temperature 100°. The abdomen was enlarged to the size of an eight months' pregnancy, the tumour extending almost to the ensiform cartilage. The swelling tended to occupy more the left side of the abdomen than the right, and was hard, rather fixed, and extremely tender, the whole picture closely resembling that of a concealed accidental haemorrhage. It was possible to elicit fluctuation in the upper left portion, but the mass in the right iliac fossa was quite hard and solid. There was no dullness in the flanks, and no foetal heart sounds or movements could be detected. Vaginal examination was unsatisfactory on account of the extreme pain and tenderness, but suggested a firm mass continuous with the cervix occupying the lower right quadrant of the abdomen, and a large cystic mass inseparable from it above and to the left. The diagnosis lay between concealed accidental haemorrhage and a twisted ovarian cyst complicating early pregnancy. The possibility of an abdominal pregnancy was considered, but rather discounted in view of the previous curettage and absence of other signs. The patient was kept under observation for twenty-four hours, but did not improve, in fact became rather worse, and an operation was then decided upon, a diagnosis of twisted ovarian cyst complicating early pregnancy having been made.

On opening the abdomen a large rather thick walled cyst was seen almost filling the peritoneal cavity; the latter also contained a large amount of recent fluid blood and old blood clot. On extending the incision the "cyst" was seen to be rising from the left broad ligament, which had been stretched and lifted up, while the uterus—enlarged to the size of a three months' pregnancy—was closely apposed on the right side. The "cyst" was found to be adherent to the abdominal wall in front and to the omentum and small intestine above and behind; during this separation the anterior wall suddenly gave way and a large quantity of liquor, followed by a living child, came out. The gestation sac was then seen to be composed of a much stretched out broad ligament anteriorly, while posteriorly it had burrowed under and lifted up the caecum and mesentery of the small intestine; the right colic artery was running in the wall of the sac. The placenta was hurriedly removed, and the sac packed with gauze and marsupialized. During removal of the placenta there was very little bleeding, but there was considerable haemorrhage in the abdominal cavity, probably from a torn branch of the right colic artery. After operation the patient was very collapsed and failed to respond to treatment, dying shortly after return to the ward. The child, weighing 2½ lb., was quite normal and lived for fourteen days.

Dr. Hunter said that the case presented several unusual features. On looking over the history it appeared certain that the so-called incomplete abortion for which she was curetted was in reality an early ectopic gestation, and very possibly rupture of the sac into the left broad ligament occurred during this manipulation. Secondly, the associated hydramnios almost excused the mistake in diagnosis, for even when the cyst was exposed it was impossible to palpate the foetus through its walls. To avoid a fatal result was very difficult in view of the manner in which the "sac" had displaced the mesentery and bowel, and even if the patient had recovered from the operation, intestinal obstruction would have almost inevitably ensued. It was possible that incision of the sac, emptying the contents, and packing it immediately, instead of an attempt to free it from the surrounding adhesions, would have given the one chance of a successful result.

Malignant Disease Associated with Genital Prolapse.

Dr. J. W. BRIDE (Manchester) described two cases of malignancy in association with genital prolapse, the first being a case of cervical carcinoma with vulval epithelioma

based. Belgium is busy, both at home, where her campaign against venereal diseases attracts special attention, and in that vast Congo region, so long inaccessible and full of terror for the white man, now a country where much scientific work is being carried out on preventive lines, notably in the case of sleeping sickness and tuberculosis. Italy, where the revival of learning had its birth, has contributed greatly towards the common cause. The early work there on malaria has had its repercussion in many parts of the world, and, in such colonies as she possesses, Italy does not forget Emerson's maxim, "The first wealth is health." Other examples from the Old World might be cited, for the activities of Japan have not been confined to the Archipelago of the Far East, and Japan can certainly claim a place in disseminating the principles and practice of hygiene; but it is time to cross the Atlantic or Pacific and see where America stands.

I said little in the way of comparing war and hygiene. In many respects they are as the poles apart, but let it not be forgotten that war has its constructive as well as its destructive side. There is no doubt hygiene is the greater and more beneficent force, but some of the most valuable advances in hygiene may be traced to war. Consider how campaign after campaign in Europe combined to give us the wisdom of that great army physician Sir John Pringle.

Moreover, it was war—war with Spain—which led the United States to spread abroad the knowledge and experience of public health measures it had gained and garnered since the days of Shattuck, to plunge into research with a view to prevention, to embark upon a policy which has had far-reaching results. Reed and his colleagues in Cuba penetrated the mystery which had shrouded yellow fever for centuries and Gorgas applied the new knowledge. In the Philippines and Porto Rico a hopeful gospel was preached and hygiene became a factor of paramount importance. Then followed Panama with all its wonders and triumphs, and now the good work has been extended to Haiti.

Wealth in the Service of Health.

With a few exceptions, all the cases I have cited are examples of countries busy in their own possessions, sometimes forced by circumstances to support the cause of hygiene, sometimes wise enough to see that such support is profitable, sometimes, no doubt, influenced by feelings of compassion and a desire to do the right thing.

But hygiene has been given an opportunity of showing itself as a world force in quite another manner, and this is perhaps the most startling and interesting and impressive development mankind has ever witnessed. Never before has altruism played such a part in hygienic progress, for never before has colossal wealth been turned to so beneficent an object.

When John D. Rockefeller placed his millions at the disposal of the International Health Board of the Foundation bearing his name he made that Board a power for good, a world power with amazing possibilities before it. Some of the possibilities have already been realized. Yellow fever, the scourge of tropical America, which formerly took terrible toll on your eastern seaboard, has been wellnigh exterminated. It has also been attacked in West Africa, and there is more than a reasonable hope that in the next few years it will be extinct. Even if it is not blotted out for ever, it has been so reduced and controlled as no longer to be an international danger. Again, take the hookworm campaigns set on foot in various parts of the globe; not so dramatic as the yellow fever work, but far more extensive. The war on the ankylostome has already worked wonders in certain places, and, if only properly followed up, will make an enormous difference to labour in the tropics, and incidentally will greatly diminish the evils of soil pollution.

I have no time to tell of all the other ways in which the International Health Board is proving hygiene to be a world force of the first magnitude. Were I to enlarge upon the subject I would have to ignore another international organization which is also demonstrating in a remarkable manner how hygiene may sway the destinies of nations and be a power for peace. I refer to the Health Organization of the League of Nations, the Heath Section of which, under the guidance of its restless, enterprising, and far-seeing medical director, Dr. Rajchman, is becoming a friendly, if comparatively humble, rival of the International Health Board, and is extending its activities far and wide. The parent organization is now a very important body which certainly looks upon hygiene from the widest aspect and seeks to increase its scope and intensify its undertakings. This it does by means of its Advisory Council, represented by the Permanent Committee of the Office International d'Hygiène Publique at Paris, a committee on which both Great Britain and the United States are represented, its Health Committee with its various Commissions, and its Health Section. When one looks through the long list of their activities one recognizes, not only how much is being done, but how much has yet to be accomplished. Surely, however, the outlook is hopeful with powerful organizations on either side of the Atlantic exemplifying a new spirit of international co-operation and control.

It would take hours to recount the triumphs of hygiene, but, viewing them all, let us render thanks in this country to the men who have fought the good fight and seen the works of their hands established upon them. And what of the future? These men had not the facilities you are providing for the students of to-day. They had no schools of hygiene, in large measure they had to learn the lesson in that best of all schools, the school of experience. Yet it cannot be doubted that your young men will now start upon their careers better equipped than were their predecessors. Their enthusiasm can be aroused, their imaginations quickened by what they hear and do in this new school at Baltimore, and the very sight of a magnificent building devoted wholly to the teaching of preventive medicine should impress upon them the importance of safeguarding the public health, should convince them that hygiene is indeed a world force.

Reports of Societies.

RUPTURE OF THE BLADDER DURING PREGNANCY.

At a meeting of the North of England Obstetrical and Gynaecological Society, held in Liverpool on October 15th, with the President, Mr. W. Gough (Leeds), in the chair, Miss Helen M. Duvall (Liverpool), on behalf of Professor E. E. Glynn and herself, reported a case of rupture of the bladder during labour, with fatal peritonitis. Miss Duvall said that the clinical details of the case were as follows.

The patient was a primigravida, aged 29, who had been a regular attendant at the ante-natal clinic attached to the hospital during her pregnancy. Her pelvic measurements were normal, and the urine, which had been tested weekly for some time, had no abnormal constituents. On admission she was at full term, the os was one fingerbreadth dilated, the head well down in the pelvis, and the presentation left occipito-anterior.

During the next three days she had intermittent labour pains, and the membranes ruptured at 6 p.m. on the fourth day, the os being three-quarters dilated at 8 p.m. At 3 o'clock on the following morning the patient is said to have given a piercing shriek, and to have complained of acute abdominal pain. The nurse felt the uterus then, and there was no contraction, but the patient was rather cold and clammy, and became somewhat hysterical. As the labour had been long, and the interest of the child seemed to demand it, low forceps were applied under chloroform, and the patient was easily delivered of a living male child weighing 6 lb. 5 oz. A perineal tear of the second degree occurred, and was repaired. The third stage occupied an hour and a half, and the placenta and membranes were delivered by manual expression. The condition of the patient was then considered satisfactory. The patient passed urine voluntarily just before the anaesthetic, and no urine was obtained on the passage of a rubber catheter before the application of forceps. Apparently the patient's condition gave rise to no anxiety during the next twenty-four hours, but as she passed no urine during that time she was catheterized, and 8 oz. of "smoky" urine (said to contain no blood or albumin) withdrawn. On the following day she passed 8 oz. voluntarily at 2 a.m., and 6 oz. again at 2 p.m. By the evening she had become very ill, complexion sallow, temperature 100.2° F., pulse rapid and almost imperceptible, respirations quickened. The abdomen was much distended and very tympanitic, and there was pain in the left iliac region. The usual restoratives were given, but she was much worse by the next morning, with

was decidedly aggravated—indeed, was often produced—by light. Light also aggravated dermatitis herpetiformis, Besnier's prurigo, psoriasis, purpura, and erythema multiforme. On the other hand, there were not many skin diseases which were actually improved by natural light. Even lupus vulgaris was not appreciably influenced by the local action of light, the effect in this case being caused by cauterization and burning, with a mixture of heat rays and concentrated light rays. The universal light bath often had a good effect in this disease. Skin affections which usually benefited by light were acne vulgaris, the secondary syphilitic affections of the skin, elephantiasis, and lichen planus. Sometimes direct light prevented a papular syphilitic lesion from developing. In conclusion, Dr. Rasch said that the reason there were so many harmful effects due to light was that many held the view that as much light as possible was good for all people and for all diseases.

Clinical Cases.

Preceding this lecture a number of clinical cases were shown to the Section, including one by Dr. HALDIN DAVIS, entitled "Pigmentation of unknown origin," and another, by the same exhibitor, under the name of "argyria." This second case of pigmentation, Dr. Davis said, was due to the ingestion of silver nitrate pills, at one time a fashionable remedy for indigestion. This woman took these pills three times daily for a period of twelve months twenty years ago, and she had suffered from argyria ever since that date; the discoloration had only become slightly fainter. Argyria seemed to be very capricious in its incidence. One woman, after only six weeks' use of protargol in the form of swabs for uterine trouble, had this same characteristic pigmentation, but it disappeared after lasting three years. He was still unaware of the origin of the pigmentation in the case first referred to. Civette called an apparently similar case poikiloderma reticularis, and stated that there was atrophy of the skin. No atrophy had been noted in the case now shown; there had been menstrual troubles for six or seven years.

Dr. GRAHAM LITTLE showed a patient who, when he came before the Section in May last, had a serious condition of acute nodular leprosy. So serious was the condition that the patient was urged to return to India as speedily as possible. But he came under Dr. Hasson's care, and two months later that gentleman asked Dr. Little if he would like to see him again. He did so, and found, to his astonishment, that the disease had become completely involuted, and no lepra bacilli could be found in the mucosa of the nose or in blisters artificially caused in the anaesthetic areas. Searches for the bacilli since the great clinical improvement of the patient had consistently failed. Dr. HASSON briefly spoke on the case, remarking that he found the use of chaulmoogra oil useless in this disease, and in 1923 commenced giving his patients a special vaccine, which was not autogenous, but a stock vaccine, the patient being blistered in order to carry out the technique. This patient had had fifty-three injections of the vaccine, some into the veins, the remainder under the skin. He hesitated to apply to this case the term "cured," as a relapse might occur up to five years, but certainly all signs of leprosy had now disappeared.

SURGERY AND THE WORKMEN'S COMPENSATION ACT.

IN the Section of Surgery of the Royal Society of Medicine on October 20th Mr. V. WARREN LOW, the incoming President, delivered his address from the chair, which was followed by a discussion. He took as his subject "Surgery and the Workmen's Compensation Act."

Mr. Warren Low began by tracing the history of workmen's compensation. As far back as 1846 a Select Committee, shocked by the casualties occurring among labourers engaged in railway construction, reported in favour of making the railway companies pay compensation in cases of accident, but it was not until 1880, and then only tentatively, that steps were taken by the Legislature to give effect to that salutary suggestion. In 1880 the Employers' Liability Act was passed. Previously the only remedy for the workman was to bring a common law action against his employer, in which he had to show that the injury arose through the employer's personal negligence or through his having knowingly employed an incompetent servant. Furthermore, the counter-charge of contributory negligence might, if substantiated, deprive the workman of success in his action. In 1897 the Workmen's Compensation Act introduced into English law the entirely new principle that the workman was entitled to compensation irrespective of any question of negligence, but that statute applied only to certain dangerous trades. In 1900 the Act was extended to agriculture, and in 1906 to all employments with some specified exceptions. The innovation of greatest interest in this last measure was the provision that the county court judge should have a medical referee sitting with him as assessor. In 1919 a departmental committee was appointed, and as a result of its report the Act of 1923 was passed. This was repealed in large measure, and the Act of 1906 was wholly repealed, by the new consolidating Act of 1925.

Owing to the number of cases which had been decided in the courts and to the medical knowledge now available, the legal position of any plaintiff, save in a few exceptional cases, was perfectly clear provided the facts were proved. To the legal mind, untrained in medicine, it must often appear that opposing doctors were expressing quite contradictory views, not to be explained by the ordinary and legitimate differences of professional opinion. The difference, however, was more apparent than real. In this class of cases there was plenty of room for wide differences with regard to the essential points at issue. The duration of incapacity, for instance, was a matter upon which there might be quite different views, and it was often most difficult for the conscientious surgeon to decide after what period the injured workman ought to be forced to resume his normal employment. A number of cases were found in which a few weeks of incapacity created a workshyness and an inertia which was exceedingly difficult to overcome, and the certifying doctor might shrink for months from applying the drastic remedy of refusing a certificate. It would be difficult to assess the loss to industry which ensued from this prolongation of the period of supposed incapacity, and perhaps even more serious was the effect upon the man's morale. With a little more encouragement and persuasion the time of incapacity might be materially diminished.

Of all the pitfalls those which arose in connexion with diseases of the nervous system were possibly the most treacherous. Mr. Warren Low gave details of typical cases in some of which, for example, commencing general paralysis or other syphilitic affection of the central nervous system was accelerated or aggravated by an injury. He had notes of several cases in which a trivial injury was held to give rise to symptoms which were really due to the insidious onset of cerebral tumour. The possibility of a typical neurasthenia or psychasthenia following an injury had to be admitted. In these cases the distinction between a pathological condition and a certain type of malingering was very difficult. Often in cases in which neurasthenia ensued upon a trivial accident it seemed to efface from the individual not only all ambition but even self-respect, and he was content to live a life of semi-invalidism in which he could never quite be said to be malingering, but was certainly making the most of a very slight disability. Some of these people, once they were labelled neurasthenics, were content so to remain as long as the stimulus of want did not force them to make exertions. A large proportion of cases of surgical tuberculosis, particularly in the spine and joints, were associated with injury, and here again often the injury was an afterthought, so deeply rooted in the mind was the idea that disease must be caused by something exterior to the patient, and the thing easiest to recall was some, perhaps, slight injury no more than that which men in certain employments frequently sustained. It was quite impossible to lay down any general rule for dealing with these cases; each case must be considered by itself.

The difficulty was very great also in cases of osteo-arthritis. Slight repeated injuries to joints might possibly induce this condition, but the first intimation of anything wrong with a joint often followed an injury. A man might

and the second one of primary carcinoma with prolapse of the uterus.

The first patient, aged 50, had six children, the last ten years ago. Menstruation had been 4/28 type and profuse, the last two months ago. In June, 1921, she complained of a brownish watery discharge and of "something coming down." She had never worn a ring pessary. She was found to have a complete prolapse with hypertrophy and severe ulceration of the cervix. Although the cervix was not considered definitely malignant the uterus was removed by vaginal hysterectomy in the course of an extensive anterior colporrhaphy according to Fothergill's method. The pathologist's report was that there was a columnar-celled carcinoma of the cervix. The patient made an uninterrupted recovery, and until April, 1925, four years later, she had no further trouble. At this date there was no sign of any recurrence of growth in the pelvis, but she was complaining of a small ulcer on the right labium majus, obviously epitheliomatous and fixed. She first noticed irritation and then ulceration in December, 1924. The vulva and glands were excised, and microscopical examination showed it to be a case of epithelioma of the vulva. Recurrence followed at the end of that year, and radium was applied on two occasions. The patient died in 1926. There was never any recurrence due to the cervical condition.

Dr. Bride said that it appeared to be generally allowed that malignancy of the cervix was rare in association with genital prolapse. Cullen regarded the incidence of the two conditions as accidental, and did not consider that prolapse predisposed to carcinoma. Pantow, who reviewed the literature in 1893, found only twenty-nine cases, in all of which the prolapse preceded the carcinoma. The unlikelihood of there being any connexion between the primary columnar-celled carcinoma of the cervix and the vulval epithelioma was important. This case seemed to illustrate the point that vaginal hysterectomy might still be regarded as holding out almost as good hope of cure as the abdominal total extirpation.

Dr. Bride's second patient was married, and had four children, the eldest being 29, the youngest 23 years of age. All the labours were normal, but she had noticed "something coming down" since the birth of the first child. For the last five to six years this had been getting much worse, and she had worn a rubber ring pessary. Menstruation had ceased eleven years ago, but three years ago she had a profuse attack of bleeding for three weeks, and had a slight brownish discharge at times since. In June, 1926, she had, against advice, retained her rubber ring pessary, No. 3, for ten months. On removing it, in a very offensive condition, a large raised bleeding plaque was found on the lower middle part of the posterior vaginal wall, and epithelioma of the vagina was diagnosed. The growth was an oval plaque with raised hard edges and crater-like centre, about 2 inches long by 1½ inches wide. It appeared to be fixed to the rectum, probably inoperable, and best treated by radium. However, being anxious for a section of it, Dr. Bride performed posterior colporrhaphy, including the growth in the flap; it was dissected off the rectum with great difficulty though it was right on to the rectal mucosa. Previously to this the uterus was curetted, and no malignant disease of the body or cervix was found. The growth was a primary squamous-celled carcinoma of the vagina. The patient was discharged, and before leaving hospital radium was applied.

Dr. Bride said that Dougal at Liverpool, in 1922, had described a case of primary carcinoma of the posterior vaginal wall treated by hystero-vaginectomy, where the growth occupied the upper two-thirds of the wall. In summarizing the literature Dougal mentioned that Meyer, Schmit, and Winckel had each described a case possibly due to pessary irritation. It seemed possible that Dr. Bride's case might have originated from the same source, since the patient neglected to have the pessary removed and cleaned at proper intervals, as instructed. For a growth situated in the lower part of the vagina, possibly this very simple operation together with radium might effect a cure.

Malignant Growths in the Cervix.

Professor W. Blair Bell described a case of bilateral squamous-celled carcinoma of the ovaries and peritoneum. The patient was a nullipara, aged 55, who, five months previously, had undergone vaginal hysterectomy for cancer of the cervix. A very large tumour was found occupying the whole of the right side of the abdomen from just below the ribs to the symphysis, and free fluid was present. Bilateral, partly cystic and partly soft, solid tumours were removed; the left one was adherent to the bladder. Nodules of growth were discovered in the pelvis at the vault of the vagina, and metastases were observed in the liver. The tumour consisted of malignant cells derived from squamous epithelium, and there was much necrosis with softening. Comment was made on the extreme rarity of such tumours in the ovary. Professor Blair Bell also described a case of squamous-celled carcinoma of the ovaries and peritoneum subsequent to carcinoma of the cervix in a widow, aged 62, treated by radium. The pelvis was occupied by squamous-celled carcinomatous growths of the ovaries. Nodules and masses were present in the peritoneum and the omentum. This appeared to be a case of cervical cancer cured by radium, but growth of a similar character subsequently developed in the ovaries, and from them disseminated in the peritoneal cavity.

The President emphasized the rarity of malignant growths of the ovaries secondary to carcinoma of the cervix, though not in the case of carcinoma of the body. Dr. Leith Murray thought that the growths might be columnar-celled rather than squamous-celled carcinomata. Professor Briggs agreed with this suggestion, and it was decided to refer the matter to a pathological subcommittee.

Dr. C. P. Brentnall (Manchester) showed slides illustrating endometrioma of the anterior abdominal wall; and Dr. H. Leith Murray (Liverpool) demonstrated a specimen of primary carcinoma in the appendix removed from a patient aged 42.

THE EFFECT OF LIGHT ON THE SKIN AND SKIN DISEASES.

At the meeting of the Section of Dermatology of the Royal Society of Medicine on October 21st, with Dr. J. H. Sequeira in the chair, a lecture, well illustrated by the epidiascope, was delivered by Dr. C. Rasch (professor of dermatology and venereal diseases, Copenhagen), on the effect of light on the skin and skin diseases.

Professor Rasch began by objecting to the pronouncement of a certain physiologist that clinical medicine was a played-out science, and that the only use now was for experimenters. He contended that clinical science and experimentation were the twin supports of modern medicine. Turning to his subject, he said that priority in studying the effects of light on the skin must be given to Sir Everard Home (1763-1832), who had conducted experiments showing that irritation caused in the skin by the sun was due to its light, not to its heat, as also was the pigmentation function. One effect of the sun on morbidly sensitive skin was to produce a condition which Professor Rasch had previously described as an eczema-like polymorphous light eruption. The rash itched intensely, and consisted of slightly raised erythematous spots, oval or round in shape, varying in size, partly vesicles and partly scab-covered papules. In 1911 Dr. J. H. Sequeira had described a disease which he called permanent freckles, for which light was held responsible. It consisted of a steadily increasing outbreak of spots of pigment, as in xeroderma pigmentosum, but lacking the other signs of this latter disease. The manifestations of skin reaction to light varied with each individual, the itching being followed sometimes by papular lesions, or erythematous or urticarial lesions, often with diffuse weeping on the surface. There might be secondary infections with impetigo or folliculitis. He agreed with Dr. H. G. Adamson that there existed a relationship between the milder cases of summer eruption and Bazin's hydroa vacciniforme. There should be a distinction between this latter condition and the polymorphous light rash. Polymorphinuria was not always associated with this sensitiveness to light, but it seemed to act as a sensitizer to the skin, as did also alcohol. The lecturer showed a photograph of an extensive ulceration on the hands of an alcoholic who had slept in the sunshine in a park; it was a bullous rash, like the "pseudo-pellagra" of the French. He also described two cases of war melanosis due to the action of light, and two cases of colloid degeneration of the skin owing to the same cause. The chronic reddening and thickening of the skin in old peasants was a common observation, and he attributed it to the continual effect of the sun's rays. Allied to this condition was a senile degeneration of the elastic tissue of the skin. It was an old observation that the lesions of small-pox healed without leaving scars when the patient was kept in the dark. A "red room" ought to be installed wherever small-pox was treated. Pityriasis simplex was sometimes rendered eczematous by the action of light. Lupus erythematosus

measuring physique advised by the medical witnesses during the Factory Commissions, the measuring rod, the scales, the tape and the pulmometer of Thackrah, and the date of eruption of the permanent teeth introduced by Sir E. Saunders, still constituted the basis of judgement of the physique of the schoolboy. In all calculations they must begin with the average boy, and from him measure the degree of accelerated or retarded physique, the effect of instruction in the gymnasium, swimming-bath, games, and classrooms; they had even extended their inquiries to the comparison of school physique with its sequel in the local university. The Manchester Grammar School measurements had been taken under exactly the same conditions from 1881 to the present time. They showed that the average boy was steadily improving in height, weight, and chest girth, though the measurement of vital capacity and of endurance (by Flack's test) was of too recent adoption for determining whether there was any improvement in respiratory power. Comparisons of boys admitted to the Classical Sixth and Science Sixth between 1890 and 1910, and of boys chosen for the gymnasium eights during the same period with the normal boy, showed that, while there was little to distinguish them in height or weight from the average boy, yet in both cases there was a significant difference between them and the normal boy as regards chest girth, which in both cases was superior. In order to find a common basis for comparing mental and physical progress some units of physical measurements must be taken and based on time increments—namely, in the progress made in six or twelve months. Tables of time increments in height, weight, chest girth, vital capacity, and endurance based upon the records at the school had been drawn up, and were used for constant reference. By means of these the relative development in the different categories could be compared. Observations were also made on the specific gravity of boys in the school swimming-bath during the summers of 1923-24. It was found that the largest factor in the variations was due to the degree of inflation and the size of the chest. When the means of the observations with inflated chest at each year of life were taken it was found that they were always below that of water, while the means of the observations with deflated chests were always above that of water. The question of buoyancy as a standard of health was therefore considered. As it was impossible to measure the buoyancy of all the boys in the swimming-bath, an attempt was made to utilize the measurements taken in the gymnasium for finding the relation between weight and volume—namely, the specific gravity.

The formula $\frac{\text{Weight in grams} \times K}{\text{Height in cm.} \times (\text{chest in cm.})^2}$ was adopted.

A lengthy series of inquiries showed that for the average boy K was in the immediate neighbourhood of 19.5. In the subsequent 2,300 calculations of the series of measurements the K was left out and the formula $\frac{W}{H C^2}$ was used as a "crude buoyancy index" of health. If special cases, where the chest girth differed markedly from the mean circumference of the body, as for example, the cases of boys of exceptional shoulder development and the case of boys of very full stomach, were left out, the crude buoyancy index was a very useful method of testing the physical fitness of different boys. The means of the crude buoyancy index of the 2,300 cases at each age were taken as the normal, and it was found that the high-level scholar was of markedly greater buoyancy and the gymnasium champion of still greater buoyancy than the average boy of the school. A further series of measurements of shoulder girth was taken, and this girth was calculated as a percentage of the trunk height in order to obtain an index of shoulder development. Dr. Mumford added that a study of the development of the shoulder in relation to physique was of very great importance, since in Circular 1363 the Board of Education had virtually scrapped the elastic horizontal ladder, the row of rings, the parallel bars and the horizontal bar, which had played so large a part in developing the physique and courage of English public schoolboys, substituting Swedish apparatus for them. Mathematical analysis of measurements taken at the Manchester Grammar School showed a high correlation between the development of the shoulder, as secured by English methods, and the high range of breathing; whether Swedish methods would prove as active and beneficial to English public schoolboys remained to be proved. Graphs illustrating the development of champion gymnasts, swimmers, winners in long-distance runs, sprinters, holders of school colours in lacrosse, football, and cricket, and also graphs showing differences in physique between boys of accelerated and boys of retarded scholarship, had been constructed and exhibited. Finally, a group had been taken of 140 students who, during the last ten years, had been educated at the Manchester Grammar School, where they had been submitted to periodic measurements and had subsequently passed on to the Manchester University. The group was divided into two sections: (1) about forty-five in number who had passed through a five years' course at the medical school and had not failed at any examination; and (2) those who had suffered one or more failures. It was found that though the mean height after 16 years of age in the former group had been slightly less than the mean of the latter group, yet when the relative gradings in height, weight, and chest girth were compared, the boys who had passed through the university without any failures had shown an ampler range of breathing or a larger chest girth in relation to their height than the group who had suffered failure.

SCOTTISH SOCIETY OF ANAESTHETISTS.

Annual Meeting.

The Scottish Society of Anaesthetists held its annual meeting in the Faculty Hall of the Royal Faculty of Physicians and Surgeons, St. Vincent Street, Glasgow on July 6th last. The meeting was attended by the Associated Anaesthetists of the United States and Canada, who were then touring in this country; among those present were Dr. Mary E. Botsford of San Francisco, Dr. Wesley Bourne of Montreal, Dr. J. Wade Elphinstone of Pittsburg, Pa., Dr. R. B. Hammard of White Plains, New York, Dr. F. H. McMechan of Avon Lake, Ohio, and Drs. E. I. McKesson and Lamara Schuey of Toledo, Ohio.

Dr. J. Stuart Ross, who was succeeding Dr. A. Mills as president of the society, gave his presidential address on "The provision of an anaesthetic service." Dr. Ross explained the steps he had taken to ascertain what was being done at the various medical schools to improve the supply of skilled anaesthesia both in hospitals and in private practice. A questionary had been drawn up and circulated to leading anaesthetists. Replies had been received from a large number of schools in England and some of the Dominions. From the replies it appeared that lectures to students were universally provided and that attendance was obligatory. The number of attendances varied from three to a dozen. Dr. Ross thought they should always be more than six, and should include instruction in applied physiology. In many schools the subject was illustrated by demonstrations upon anaesthetized animals, whereby the causes of various accidents which might happen in the operating theatre were made more clear to the student mind. In the supervision of students in practical administration emphasis should be laid upon the use of safe methods for minor surgery and for dentistry. Owing to the deficient teaching of the medical student in Scotland the Edinburgh Dental School had educated its pupils to give their own anaesthetics. In over sixty thousand administrations at the Edinburgh Dental Hospital there had not been a fatality. Special instruction in anaesthetics should always be given to residents immediately on or before taking up office. This was evidently generally recognized; but some schools which had resident anaesthetist appointments naturally did not need to give extra teaching to the other house officers. Post-graduate instruction was now available, particularly in London, so that qualified practitioners could take a course under a skilled teacher. Practically all the schools questioned, including those in the dominions, had included in their full staff one or more of their visiting anaesthetists. But this was not the case, Dr. Ross thought, in any Scottish school. In five of the London schools one or more resident anaesthetists were appointed. This had a

have been carrying on his customary work for some time without noticing, or others noticing, how stiff and awkward his movements were, but when an accident occurred which laid him up for a short time he often had singular difficulty in getting again into his stride. Mr. Warren Low gave many examples of the difficulties which a cunning or a stupid man might introduce into what should have been a straightforward case. Another very difficult question was the length of time which should elapse before a man who had sustained a fracture, particularly a fracture of the lower limb, might return to work. Many such men were put for years upon light work—mess waiters, lift attendants, and the like—which was of small economic value. Good anatomical results might be secured, and there might be no stiffness of joint when the man left the hospital; nevertheless, he would go limping about, making no attempt to continue the exercises he had been taught. The conditions of industry would seem to require, in addition to the use of ordinary hospitals, some after-care centres where, by constant supervision and encouragement, men who had been discharged from hospital might be induced to overcome their lack of faith in their own restored powers.

Dr. Ernest Solly (Medical Referee, Harrogate) corroborated what the President had said about the difficulty in deciding between the disability definitely due to an accident and that due to other causes. One great deficiency in the Act was that it made no provision for the assistance of the medical assessor or referee by affording him reliable evidence, such as an *x*-ray photograph. He had twice applied to the Home Office on this matter, and had been told that in one case one guinea and in the other case two guineas could be expended for this purpose; this was not enough for a proper radiological report. The referee was called upon to give an opinion from which there was no appeal, and yet no definite provision was made for him to obtain the evidence by which alone he could make that opinion definite.

Dr. Murray Leslie (Medical Referee, City of London) said that a radiograph was only one of several things which the medical referee ordinarily could not get. He agreed with the President's suggestion as to the need for industrial after-care centres. When the surgeon had done all that he could, when the Pott's fracture or the Colles's fracture had healed, when the punctured wounds had cleared up satisfactorily, and the man was sent out of hospital, he still remained in his own opinion and in the opinion of his friends not able to resume work, and the period of such incapacity might extend from one to five years. The determination of incapacity depended very much on the temperament and environment of the man himself and the character of his friends. A peculiar thing happened to the majority of these men. It was more than mental inertia, and the word that expressed it most clearly was "deterioration." The man's whole mental outlook worsened. This was partly the result of idleness, possibly lounging at the public-house, partly also the result of the commiseration of his friends, which led him to feel himself a victim and a hero, and his injury assumed an undue proportion in his mind. Treatment was required in many of these cases for the man's mind no less than for his limb.

Dr. D. A. Coles (Beckton) hoped that the next Workmen's Compensation Act would be less slipshod in its language. For example—the word "serious" was used—"serious and wilful misconduct of that workman," "serious and permanent disablement"—although neither a lawyer nor anyone else could define the term. He referred also to the unintelligibility of Section 9, in particular the rules for calculating the weekly payment in the case of partial incapacity. One thing to be deplored in all these cases of industrial accident was the usual absence of any careful note of the time and circumstances.

Mr. Maynard Smith asked whether Mr. Warren Low had come across many cases of acute osteomyelitis. He had had two such cases in young persons following a very trivial injury, in one of them so trivial that no notice of it was given to the foreman at the time. Was it to be held that osteomyelitis was the direct result of an injury? He had also had a case which suggested that progressive muscular atrophy might follow an injury. He thought that some care might be taken in the choice of referee with respect to the type of case. He had known a nerve specialist sitting as referee in a surgical case.

Dr. R. Prosser White (Wigan) said that there had been about 500 cases of mule-spinner's cancer in Lancashire, costing the masters about £100,000 in damages. These cases began with a papule, which enlarged, and then developed into a spindle-celled sarcoma. He wished to ask the surgeons at what stage this should be treated by operation. Following operations on the groin there had been some lymphatic stasis and lymphangitis, and the man operated on had never been able to return to his ordinary work. Was there a greater danger in removing glands from the groin than from the axilla?

Mr. Max Page said that in his out-patient department he had been very much struck by the frequency with which epididymitis was attributed to a definite injury. The actual injury had nothing to do with the beginning of the infection, it simply called attention to the painful spot. He also drew attention to the industrial disability following fractures of the os calcis. These patients with impacted fracture were sent out of hospital still complaining of painful heel, and he wondered whether the men ever got back to work at all.

Mr. Warren Low, in replying, said that he could not help feeling that the profession had been a little slack in the matter of certification; to give a certificate that the man was not yet fit for work or fit only for light work was so often the path of least resistance. Light work was not economic labour, and there were thousands of men, otherwise able-bodied, employed on these jobs. He had not actually come across cases of osteomyelitis developing after injury; the condition was rare in adult life, though recurrent osteomyelitis was sometimes found in older people when the original organism had been introduced into the system during childhood. In reply to Dr. Prosser White, any extensive dissection of the lymphatics of the groin was very apt to lead to lymphatic blocking. In conclusion he urged that industry should take some steps by means of after-care to speed up the return of men to work. In America the Pennsylvanian Railroad and other big industrial undertakings had their own hospitals and medical officers; when the patient reached the stage at which he would ordinarily be discharged from a public hospital he was taken in hand and trained and encouraged to fit himself for resuming his occupation.

THE PHYSIQUE OF SCHOOLBOYS.

At a meeting of the Manchester Medical Society, on October 6th, Dr. Alfred A. Mumford, medical officer to Manchester Grammar School, delivered his presidential address on the physique, stamina, and efficiency of schoolboys.

Dr. Mumford said that the Manchester Medical Society was founded in 1834 by a number of young medical men, many of whom had had ample experience of the ill effect of the factory system owing to their holding appointments at the numerous local hospitals and dispensaries. They had advocated Government inspection and control, signed petitions in its favour, and had given evidence before various parliamentary committees and commissioners. Sixteen out of the twenty elected as officers to the new society were associated as teachers with one or other of the local schools of medicine. That there was a general desire for the improvement of health in the district was shown by the fact that a board of health had long been established, and a few years later a sanitary association was started for instructing the public in general matters of health. There was good reason for believing that the activating spirit was James Kay Shuttleworth, who had already instigated the formation of the Manchester Statistical Society to inquire into problems concerning the degradation, ignorance, and disease of the town population. Problems similar to those aroused by employment of children in factories were naturally met when the national system of education compelled the attendance of children at school. Though the medical assessment of health had vastly improved during the last ninety years, yet the methods of

Reviews.

SIR JAMES MACKENZIE.

"Mackenzie was a great doctor, the greatest, I believe, of our generation. He was a great man of science, a great observer, a great thinker, a great controversialist. But over and above all these things he was a great man, a great friend, true in heart, noble in spirit, dauntless in courage." This statement, made in the opening pages of the book, will be endorsed by many who know about Mackenzie and his work and by all who knew him well. It also stamps the author as a hero-worshipper, and such a one may sometimes depict his hero not actually as he was, but as he appeared to the worshipper. For a really interesting biography—and this one will certainly grasp the reader—the author should always be an enthusiast with a gift of picturesque writing.

An attempt has been made to render this book, *The Beloved Physician: Sir James Mackenzie*,[1] suitable for the lay and the medical reader, and not always quite successfully. The technical parts describing Mackenzie's medical work will probably prove beyond the grasp of the ordinary lay mind. The medical reader will probably be irritated by the elementary instruction of the layman in medical matters, but he will be rewarded by a singularly lucid account of the medical problems which confronted Mackenzie, and his method of solving them. As a new generation has grown up which accepts Mackenzie's teaching as authoritative, without knowing how it was evolved, we can strongly recommend this masterly exposition of his life work as extremely valuable to young practitioners.

The Beloved Physician, the name which came to be applied to him in Burnley, had in many respects a placid life, but the author deals with it in somewhat dramatic style. All readers of Mackenzie's writings are familiar with the case of the young mother dying in childbed as the result of heart disease. He made it the text of many a sermon, and it showed well the clinical value of one case in directing the physician's attention to special investigation. Here it serves to give an opening to the author's power of description and his tendency to a journalistic style of writing. He makes great play of the "giants" which crossed Mackenzie's path and threatened to wreck his progress. At times they took the form of the editors of medical journals, though the author of this book pays handsome tributes to two of them. At others, they appeared as "Harley Street," and again as all who failed to appreciate the greatness of the man. As a matter of fact, Mackenzie's experience was the same as that of all great medical pioneers—their discoveries are not accepted at first. What the profession has to be thankful for is the fact that Mackenzie was a first-rate fighting man, and poured his views down the throats of the doctors—in season and out of season. Mackenzie was a golfer, and when requiring a niblick in a bunker he used to call for his claymore. At times this was the sort of weapon he used in controversy, and there is little doubt that he thus accelerated the general acceptance of his views by many years.

There runs through the book a curious contradiction in that Mackenzie is at one time pictured as ignored and misunderstood in London, and at another as loaded with all the honours his professional brethren and country could give him. The author even apologizes for the fact "that some passages of the book are inspired by bitterness or unkindness or sarcasm," and explains this by saying they are directed first and most of all against himself because he did not grasp Mackenzie's meaning and aims until late in the day. This method of relieving an author's feelings does no good to the hero's memory, nor does it tend to historical accuracy. It appeared to many that Mackenzie's views were often difficult to grasp, and it may be left an open question whether the fault lay with the exponent or the hearer. There is no doubt that one reason was his actively progressive mind—he was constantly at new ideas based on a substratum of facts not sufficiently understood by his audience. Mackenzie was distinctly an elusive personality, and the author of his biography might have developed this side of his character rather than indulge in sarcasms levelled at the medical profession.

The personal details about Mackenzie's life are extremely interesting. With the knowledge of what was to follow, it is delightful to read that on going to school at the age of 5 years, "when he returned home again, after the first day's work, he announced that his education was finished. He had had enough of it." Apprenticeship in a chemist's shop followed school life, and it is very terrible to read in these days of his working hours—"twelve hours on each week-day, fifteen hours on Saturday, and four hours on Sunday." On the Saturday nights, when Mackenzie could not get home before midnight, "his mother was accustomed to pull up a blind of the farmhouse, and set a lighted lamp in the window, so that he might see this sign of welcome a mile or so away on his lonely journey. Mackenzie never forgot that lamp." Readers will enjoy all the personal details of the doctor's life in Burnley, at first in residence with the senior partner, and later in his own house at Bank Parade. No event was more important than his marriage, which, judging by the happy result, must have been arranged in heaven. All friends of Mackenzie will also feel indebted to his wife for the family details which she has given in this book and which she alone could give.

Full justice is not, we think, done to the last great adventure, the settling in St. Andrews. The work at the institute there, and the stimulating effect of Mackenzie's presence and guidance, are fully described; he himself, however, was dreaming great dreams and pondering over the future of medicine. Not everyone understood this, and some of his readers were puzzled. While in the past his work had naturally been limited to a great extent to the study of the heart, he now sought to find out the laws which governed the production of symptoms in all forms of chronic disease. He believed that such laws existed and ought to be discovered. The path probably lay through the recognition of the disturbance of physiological laws. To physiological laws and to the description of physiological processes he turned, but found them to be unsatisfactory and in many respects untrue, so far as the current teaching went. And so death came to the old warrior, the old general practitioner, and found him struggling to find out new great general laws which would aid the progress of medicine.

[1] *The Beloved Physician: Sir James Mackenzie.* A Biography by R. Macnair Wilson. London: John Murray. 1926. (Demy 8vo, pp. x + 316; 1 portrait. 12s. net.)

BONE DISEASES: INFLAMMATORY AND TOXIC.

The appearance of a new book on the somewhat complicated subject of bone disease is always a matter of interest, and particularly so when the author is a practical surgeon who has also made an intimate study of the subject from the pathological side. The advantages of this combination are well seen in the recently published work of Mr. Lawford Knaggs on *The Inflammatory and Toxic Diseases of Bone*.[2] It is probable that this country is unsurpassed in the wealth of material existing in its museums exemplifying the various diseases of bone, and in illustrating his subject the author has wisely made use of this material, not only from the extensive collection in his own university of Leeds, but also from the abundant material in the Royal College of Surgeons and the London and provincial medical schools. The result is a volume possessing the satisfactory features of being eminently practical, in that the clinical aspect is kept in the foreground, while the pathology of the subject is adequately treated and its practical bearing duly emphasized. The author's plan of accompanying his descriptions of the several diseases by means of clinical histories of actual cases and of referring, as far as possible, to actual specimens accessible to his readers in museums, is excellent; these features, with the addition of good illustrations, form the best possible basis for a satisfactory exposition. The illustrations number, on the average, one to every other page, without undue crowding, and of their quality the beautiful figures of leontiasis ossea

[2] *The Inflammatory and Toxic Diseases of Bone.* By R. Lawford Knaggs, M.C.Cantab., F.R.C.S. With numerous photomicrographs by G. H. Rodman, M.D., Hon. F.R.P.S. Bristol: J. Wright and Sons, Ltd.; London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd. 1926. (Med. 8vo, pp. xii + 416; 197 figures. 20s. net.)

marked effect in improving results, and also furnished the best possible training for one who wished to take up the subject as his life work. Only by providing a twenty-four-hour service could the mortality rate in hospitals be kept within reasonable limits. In private the supply of skilled anaesthetists had certainly increased. Dr. McKesson had estimated that the number of persons doing anaesthetic work exclusively had increased within the last few years from four or five hundred to two thousand. As the result of all these efforts, Dr. Ross could not doubt that vast improvement had taken place. If, however, one turned to the statistics of the Registrar-General for England and Wales, and also for Scotland, the impression given was of progress in the wrong direction. In comparing the death rate from or under anaesthetics per hundred thousand population for the three pre-war years with the rate for all the post-war years Dr. Ross had been able to see, it appeared that in England and Wales there had been a rise since the war, but only from 0.8 to 0.9. In Scotland there had been a very substantial post-war rise.

Year.	England and Wales.		Scotland.	
	Mortality Rate per 100,000 Population.	Proportion of Total Anaesthetic Deaths occurring under CHCl3 or a Mixture containing it.	Mortality Rate per 100,000 Population.	Proportion of Total Anaesthetic Deaths occurring under CHCl3 or a Mixture containing it.
1911	0.7	66.0 per cent.	0.9	95.0 per cent.
1912	0.7	52.0 ,,	0.9	91.5 ,,
1913	0.8	48.3 ,,	1.0	87.5 ,,
1919	0.8	63.5 ,,	0.8	86.0 ,,
1920	0.9	52.1 ,,	1.4	84.5 ,,
1921	0.9	44.0 ,,	2.2	93.4 ,,
1922	0.8	46.4 ,,	1.6	88.0 ,,
1923	—	—	1.5	76.0 ,,
1924	—	—	1.7	82.1 ,,

These figures could not be considered satisfactory. But the effect of adopting the measures already indicated had, in one hospital in Scotland, reduced the death rate by half between 1922 and 1924. Dr. Ross commended this point of view to the responsible authorities of the large hospitals.

Dr. E. I. McKesson (Toledo, Ohio) said that not enough time in lectures and clinical practice was given in most colleges for the proper instruction in anaesthesia. Particularly practical work under supervision was important; but, as pointed out, the student also needed to know the sciences underlying the subject and to be acquainted with what had been done by others. Toledo was outside a medical teaching centre, so that Dr. McKesson gave post-graduate instruction only, and the type of student was entirely different from that encountered in medical colleges. His students wanted to learn anaesthesia, having been in the practice of dentistry or medicine long enough to know the value of anaesthesia. They were a hand-picked group with intense interest. Dr. McKesson's plan consisted of practical instruction in the use of nitrous oxide-oxygen, etc., under supervision, and informal lectures and discussions of theory, of blood pressure and other reactions, and of technique for various cases. The supervised practice was by far the more important. The student was kept alert by intentional disorganization of his technique by turning off the gas or oxygen, or by changing the mixture. It was obvious that the most cordial co-operation of the surgeon and anaesthetist was necessary for such instruction in anaesthesia. Dr. McKesson believed that the best time to train anaesthetists was after the student had learned, by experience in practice, that anaesthesia was of great importance and desirable as a specialty. At the same time the routine instruction of medical students was necessary.

Dr. Mary E. Botsford (San Francisco) expressed admiration for the valuable work done in the specialty of anaesthesiology by the British. As to the comparative mortality rate referred to by Dr. Ross, she said that statistics were notoriously unreliable; the determination of the cause of death accruing in the first twenty-four hours post-operatively was often difficult and occasionally impossible. There was also the question of perhaps greater accuracy in reporting fatalities. With the unfortunately lower standards in certain districts in the United States, where technicians were used as anaesthetists, she was confident that the mortality rate would exceed the British if chloroform were used as frequently.

Dr. Torrance Thomson referred to the large number of students that had to be dealt with in a short time, and to the fact that the interests of the patient must always be the first consideration. He deprecated giving theoretical apart from practical instruction, and said it was his custom to deliver six lectures at the beginning of each term to the students with whom he was to work in the operating theatre.

Dr. Fairlie felt that Dr. Ross did well to stress the importance of the teaching of anaesthesia. He was interested in the comparative way in which the subject had been approached, and to hear of the methods adopted for instruction in the various medical schools.

Dr. Mills (Dundee) said that certain advantages were enjoyed in a young and comparatively small school. The anaesthetist was recognized as a member of the staff, and the lecturer in anaesthetics had the status of any other lecturer in the university. The number of students being relatively small, each student secured thorough instruction in the administration of anaesthetics before he sat for his final examination.

Dr. Wesley Bourne (McGill University, Montreal) then gave a lantern lecture on the effects of ether impurities.

Before the annual meeting of the society, Dr. H. P. Fairlie gave a demonstration at the Glasgow Royal Infirmary of the intratracheal administration of ether and of nasal administration of nitrous oxide and oxygen gases. This was followed by a lantern lecture by Dr. J. Ross Mackenzie on carbon dioxide in gas and oxygen anaesthesia. He showed that the partial pressure of nitrous oxide at atmospheric pressure was insufficient to produce anaesthesia for major surgery, without reducing the percentage of oxygen below that in the atmosphere. The assistance to good anaesthesia derived from local and regional analgesia, rebreathing, and carbon dioxide were mentioned. The effects of carbon dioxide deficiency upon the patient were tissue asphyxia, nitrous oxide toxaemia, apnoea; and depression of the vital medullary centres. Rebreathing, when properly regulated, he considered a very important factor in gas and oxygen anaesthesia, since it conserved the patient's body heat, retained the carbon dioxide in the expired air, and at least delayed the onset of signs of surgical shock. Infants and children were difficult to anaesthetize with gas and oxygen because relatively to adults they had a smaller respiratory exchange, a larger vital capacity, and a smaller alveolar area from which gas and oxygen might pass to the blood. A face-piece with an expiratory valve, attached directly to the gas bag, and a small percentage of carbon dioxide greatly facilitated the induction in infants. The advantages of a small percentage of carbon dioxide were, Dr. Mackenzie believed, both operative and post-operative. The operative advantages were that it hastened induction, counteracted the respiratory depression of morphine, maintained the acid-base balance of the blood, promoted ready separation of oxygen from oxyhaemoglobin to the tissues, improved the general condition of the patient, indirectly gave tone to the heart muscle and intrathoracic vessels by stimulation of the respiration, and hastened anaesthetic recovery and convalescence. The post-operative advantages were that it protected the patient against abdominal distension, respiratory complications, thrombosis and embolism, as well as post-operative collapse. Ether was frequently required in gas and oxygen anaesthesia, and, when used, he was of opinion that it should be washed out of the blood and tissues either before or after the patient left the theatre. Auto-de-etherization and de-etherization by inhalation of carbon dioxide were reviewed. The dangers of carbon dioxide administration were urgent, but in his experience could usually be anticipated. They were epileptiform convulsions, asphyxia, rupture of alveoli from excessive intrapulmonary pressure and hypercapnia.

Radical and antivaccinator, and after a brief struggle, not exactly between ambition and conscience, but rather between ambition and intellect, he agreed. In our review of the book at the time we said that it "will be eagerly read for the sake of its vivid pictures of life and its powerful study of a complex human character by those who would never trouble their heads about vaccination further than to be revaccinated when an epidemic is threatening." Our expectation that the book would be read has been amply fulfilled, and it is still to be obtained from Messrs. Longman. As, however, Haggard had at that time parliamentary ambitions it called for some courage to write it.

In the peroration to this autobiography he described himself as "a lover of the kindly run of men . . . a lover of the land, and of all creatures that dwell therein, but most of all, perhaps, a lover of his country, which, with heart and soul and strength, he has tried to serve." This is a fair statement of the motives that inspired him throughout his life.

"BRAIN."

The current issue of *Brain*,[5] vol. xlix, Part 3, opens with an article by Dr. W. J. Adie, in which he describes twenty cases, including five which he has observed personally, of a syndrome to which it is proposed to apply the term "idiopathic narcolepsy." It is characterized by attacks of two kinds: in the one the attack consists of sudden and irresistible sleep of short duration; in the other, as the result of some sudden emotion, the muscles relax suddenly and the patient sinks to the ground, but without loss of consciousness. In a few cases sleep attacks only occurred. Reasons are given by which the syndrome may clearly be distinguished from epilepsy, hysteria, and other conditions. In only two instances has the condition in typical form been found to follow encephalitis lethargica. In an interesting discussion, Dr. Adie considers the mechanism of sleep, especially Pavlov's work on conditioned reflexes in which he found that inhibition of conditioned reflexes led to a tendency to sleep, and that, in fact, internal inhibition and sleep were probably identical processes. In several of the cases Dr. Adie describes, symptoms and signs were present suggesting pituitary disease, and he believes that idiopathic narcolepsy is a functional disorder of an endocrine-nervous system comprising the pituitary body and adjacent structures in the "tween-brain." This article will well repay study in detail.

Drs. James Charles Fox and Gordon Holmes contribute an important article on "Optic nystagmus and its value in cerebral lesions." This is a type of nystagmus which occurs when an individual gazes out of the window of a fast-moving train, but a similar nystagmus is brought about when a drum with vertical lines upon it is rotated in front of a normal individual. The authors employ a drum upon which are coloured pictures instead of vertical lines. It is found that when the drum is rotated in a clockwise direction, and viewed from above, nystagmus develops in an individual watching the drum; it consists of a quick phase to the right and a slow recession—that is, a nystagmus is produced opposite in direction to the rotation of the drum. Converse conditions hold when the drum is rotated anti-clockwise, and an analogous vertical nystagmus can be obtained when the drum is rotated on a horizontal axis. In an investigation of a large number of cases of cerebral lesion, including 41 cases of cerebral tumour, Drs. Fox and Holmes have found that this optic nystagmus may be abolished in one direction—namely, to the opposite side, in unilateral cerebral lesions. Their observations support the hypothesis that reflex centres for optic nystagmus lie in the occipital lobe and in the second frontal convolution, and that these are connected by a reflex path. Since optic nystagmus is present even if visual acuity is very slight, and however restricted the visual fields, it is clear that it forms a new localizing sign of considerable value.

[5] Published in London by Macmillan and Co., and in New York by the Macmillan Company. Yearly subscription in this country 24s., to be sent to Messrs. Macmillan, St. Martin's Street, London, W.C.2. Price per part 6s. net.

NOTES ON BOOKS.

We must confess that the title of Mr. T. N. Roy's book, *The Organon Modernised*,[6] led us astray. We expected to find a modern version of Bacon's *Novum Organum*, for we had forgotten that Hahnemann also wrote a monumental organon. Mr. Roy presents this work in an abridged form, and commends it not only to students of homoeopathy, but also to psychoanalysts and students of heredity and biology. In Part II the author advances a new theory "to scientifically explain" the action of homoeopathic medicines. Briefly, his theory is based on the researches of Kucharenko on crystals. According to these, it is the nature of crystallons which explains the need for high dilution and the therapeutic action of inert substances such as gold. Through the theory of crystallons also Mr. Roy is able to explain the action of hormones, to prove the success of homoeopathy in chronic disease, to show the cause of the failure of the allopath, the enantiopath, and the isopath, and to demonstrate the wild-goose chase that is pursued by the vitamin-hunter. Mr. Roy has acquired an immense amount of information; his book is full of delightful sentences, such as "The gland-therapists are just in the chickenhood of homoeopathy"; and he has a remedy for the unfriendliness which he says exists between allopathists and advocates of homoeopathy. The proper sphere, he says, of allopathy is surgery and certain acute cases where homoeopathy is uncertain of success. The proper sphere of homoeopathy is the chronic disease and those acute diseases which do not run too rapid a course. Mr. Roy is, perhaps, a person of profound wisdom: he is D.H.A., M.A.G.A., and also field expert to the Government of Bengal.

The volume by Dr. Arthur Weber, published in Berlin, on electro-cardiography and other graphic methods in circulatory diagnosis,[7] does not contain a comprehensive account of all the methods available. The "other methods" of the title are restricted to those for the photographic registration of the apex beat, arterial and venous pulses, heart sounds and respiration; of the use and interpretation of these, as well as of electrocardiography, short and simple accounts are given. The book is therefore not so much for the general practitioner as for the medical officer in charge of a hospital heart clinic where a dark room is available. The electrical instruments described are the Edelmann modification of Einthoven's galvanometer and the electro-cardiograph of Siemens and Halske. Detailed consideration of experimental and theoretic aspects are omitted, but there are numerous references to the original papers. The illustrations on the whole are only fair, due partly to the fact that they appear to be reproductions of paper strips, and partly because too many curves are recorded on one strip.

The second part of the second volume of the *Annals of the Pickett-Thomson Research Laboratory*[8] contains a series of papers with illustrative plates dealing particularly with the corynebacteria and the etiology of tuberculosis. The volume is intended to assist working bacteriologists by giving detailed information about the puzzling group of "diphtheroids," the nomenclature of which is in great confusion. The numerous plates and the tabulation of the distinctive characteristics of each species are very helpful in this respect, and a full list of references to original papers is included.

[6] *The Organon Modernised; or the Philosophy, Science and Practice of the Curative Arts.* By T. N. Roy, D.H.A., M.A.G.A. Government Farm, Dacca: C. N. Roy. 1926. (Cr. 8vo, pp. v + 148. 3 rupees net.)

[7] *Die Elektrokardiographie und andere graphische Methoden in der Kreislaufdiagnostik.* Von Dr. Arthur Weber. Berlin: J. Springer. 1926. (Roy. 8vo, pp. ix + 208; 139 figures. R.M.18; bound, R.M.19.20.)

[8] *Annals of the Pickett-Thomson Research Laboratory.* Vol. II, No. 2. London: Baillière, Tindall and Cox; Baltimore: The Williams and Wilkins Company. 1926. (Demy 4to, pp. iv + 175; 40 plates. Subscription 42s. net for one volume a year.)

PREPARATIONS AND APPLIANCES.

A Gastric Clamp.

Mr. Donald MacLeod, F.R.C.S. (Leigh, Lancashire), has devised a clamp, which he finds most useful for the operation of gastro-enterostomy and also for pylorectomy, in which there is always danger of retraction of the stomach walls from the blades of the usual type of clamp. The instrument is an extremely light screw joint flexible clamp; the edges of the blades are raised at intervals to prevent slipping, and, in order to provide additional security in this respect, a small stud is placed on the inner surface of one blade, at its tip, fitting into a small recess on the opposite blade. The clamp has been made for him by Messrs. Archibald Young and Son, surgical instrument makers, Edinburgh.

may be mentioned as good examples. The author evidently attaches much importance to good illustrations.

In the matter of classification, by including in a single group both inflammatory and toxic diseases, the difficulty of satisfactorily placing certain diseases, such as osteitis fibrosa, has been avoided; practical considerations have led Mr. Knaggs to include the neuropathic arthropathies; he has appropriately placed them between syphilitic disease and osteo-arthritis. An interesting chapter has been appended on osteogenesis imperfecta. The ground covered by the volume includes the non-specific inflammations, with which are grouped Perthes's and Köhler's diseases; the specific inflammations; Charcot's joints; yaws; arthritis deformans; pulmonary osteo-arthropathy and allied conditions; rickets; infantile scurvy; osteitis fibrosa; osteomalacia; osteitis deformans and leontiasis ossea.

In an interesting discussion on the relation between osteitis deformans, osteitis fibrosa, and osteomalacia, the author expresses the opinion that the three diseases have a similar and possibly identical origin. The lesion in osteitis fibrosa and osteitis deformans is practically the same; in both there is a marked degree of fibrous marrow, associated with a production and an absorption of osseous tissue. In osteitis deformans ossification outruns absorption, whereas the reverse is the case in osteitis fibrosa. It is suggested that this depends on differences in the vital resistance of the patient to toxic influence. This view is to some extent supported by clinical experience, for osteitis fibrosa is a disease of young people, while osteitis deformans affects middle and advanced life; further, the victims of osteitis deformans usually show marked evidence of arterial disease. The argument, therefore, leads to the inference that a susceptible individual with a sufficient resisting power may stave off osteitis fibrosa in youth, but succumb to osteitis deformans in old age, with its failing vitality. In accordance with this view, osteitis fibrosa and deformans are regarded as different expressions of the same disease. The relation of osteomalacia to the other two diseases is similarly explained; the resistance in this disease, owing to the severe depression of the patient's vitality, is so slight that the fibrosis of the marrow is unaccompanied by bone formation, the sole effect being degeneration and absorption of the osseous tissue. In connexion with Charcot's disease the author advances an interesting theory in explanation of the excessive bone formation which occurs in the hypertrophic form. He has observed that the excess is usually found in cases where there has been rapid attrition of the ends of the bones, and he suggests that large numbers of osteoblasts are thereby set free into the joint cavity and give rise to the masses of bone around.

As indicated on the title-page, the book is intended to be a textbook for senior students; to these it will be of great service, but doubtless it will be welcomed by a wider circle. It was undertaken, so the author states, in order to create an interest in the leisure that follows retirement from active surgical duties; we feel sure that he has, in the completed work, furnished interest for many others besides himself.

CLINICAL EXAMINATION OF THE NERVOUS SYSTEM.

We recently had the pleasure of reviewing the French edition of Professor Monrad-Krohn's admirable little book published under the above title. The third English edition[3] is now before us, and the standard of previous editions is more than maintained. The book is the best short account of the clinical examination of the nervous system, brought into line with the results of recent research, with which we have met. Dr. Grainger Stewart points out in an introductory note that the book is not a translation from the Norwegian, but has been written in English by Professor Monrad-Krohn, who is a Member of our own College of Physicians. He is to be congratulated on his clear style and diction, and on the remarkable completeness of the information which he has made available within such a small compass.

The routine of examination recommended is on the generally recognized lines, but the notable feature of the book is the account it includes of clinical methods dependent upon recent knowledge which, though fully accepted, has not yet passed into the currency of the textbooks. Such subjects are the reflexes of spinal automatism, associated movements, examination of cerebellar function, cistern puncture, etc. There are admirable short accounts of all of these, though we may differ from occasional statements, such as that "in extrapyramidal motor lesions of the paralysis agitans type there is a marked diminution or loss of all associated movements." Kinnier Wilson has shown that this is a misinterpretation of the facts.

The book will be found of value by clinical teachers as well as by house-physicians and others working in the wards, while many in general practice will appreciate a brief account of modern methods. There are a number of aptly chosen photographic illustrations and some diagrams in the text.

[3] *The Clinical Examination of the Nervous System.* By Professor G. H. Monrad-Krohn, M.D.Oslo, M.R.C.P.Lond., M.R.C.S.Eng. With a Foreword by T. Grainger Stewart, M.D., F.R.C.P. Third edition. London: H. K. Lewis and Co., Ltd. 1926. (Cr. 8vo, pp. xvi + 201; 52 figures, including 10 plates. 7s. 6d. net.)

RIDER HAGGARD.

Sir Rider Haggard, who died last year at the age of 69, left behind him an autobiography coming down to 1912. It has been edited by Mr. C. J. Longman, and published with the title *The Days of My Life*.[4] The book, which is in two volumes, is discursive, but its author was a practised writer, and knew well how to keep his reader's interest alive. Haggard was one of a class that grows scarcer, partly because families grow smaller. It consisted of younger sons of squires and lairds reinforced from the parsonage and the manse. Their fathers were able to give them as good an education as the grammar schools and minor public schools could afford, and at an early age many of them sought fortune overseas; some of them failed, some of them became active in public life overseas, some made money and came home, where not a few of them took their share in local and national affairs. For the foreigner's view of the value of this class to the nation and the Empire reference may be made to the opinion Mr. W. H. Page expressed in one of his letters written from England during the war.

Haggard got his overseas experience early, and made money at home. He began life at the age of 19 as secretary to Sir Henry Bulwer, who had been appointed Lieutenant-Governor of Natal; he had some varied and exciting experiences, especially when on the staff of Sir T. Shepstone, which served him well when he took to writing romances. After about five years as an official he resigned, married, set up with a friend as a farmer, and purchased a stock of ostriches. Like a good many others on the spot, Haggard was distressed by Mr. Gladstone's bargain with the Boers after Majuba, and, believing that it would lead to a long period of unrest and eventually to a big war, as it did, he sold his farm and returned to England in 1881. He was called to the Bar, but to maintain his family took to writing stories; their growing success, culminating in *She*, induced him to give up the law. All along he had had one foot in the country, for he had gone to live in Norfolk, the county in which he was born, as early as 1882; there he came in time to live the life of a typical country gentleman of the active-minded sort, farming his own land, becoming chairman of the local bench, standing for Parliament and coming within a little of success, and eventually taking a rather prominent part in the investigation of national and imperial problems affecting the land and the workers on it. He emulated Arthur Young by an inquiry into the conditions of life in rural England, and made an arduous journey on the other side of the Atlantic to report on labour colonies.

His interest in public life led him to write (1898) *Dr. Therne*, a novel of vaccination. It was the story of a young medical man who fell into the toils of the anti-vaccinators. He was invited to stand for Parliament as a

[4] *The Days of My Life.* By Sir H. Rider Haggard. Edited by C. J. Longman. In two volumes. London and New York: Longmans, Green and Co., Ltd. 1926. (Med. 8vo, Vol. I, pp. xxv + 394; 9 plates. Vol. II, pp. ix + 286; 7 plates. 28s. net the two volumes.)

ETHYL ALCOHOL SUBSTITUTES.

Organic chemistry in the last few years has been developed on new lines; indeed, a new branch of the subject seems to have arisen which has already borne fruit in the syntheses of important organic products from inorganic sources. The new method, which may well revolutionize the manufacture of many important commercial organic compounds essential in the arts, depends on the utilization of high temperatures and pressures not previously available.

If carbon monoxide prepared from water gas is reduced at a high temperature and pressure in the presence of a catalyst, methyl alcohol is produced. Previously this compound was obtained from America, where it is prepared by distilling wood, and the impure product is termed "wood alcohol." Wood alcohol is employed in large amounts in this country; over a million gallons, for example, are used annually in the preparation of varnishes. The Germans are now said to be producing it in large quantities by the method indicated, at a cheaper rate than the Americans can produce it from wood. But this is not the whole story: by altering the physical conditions under which the reaction occurs it has been found possible to produce the higher homologues of methyl alcohol—particularly common ethyl alcohol and iso-propyl alcohol. It seems likely, unless unforeseen difficulties occur in the manufacture, that in the future this method of production will supersede all others. Although ethyl alcohol also can be prepared by this method, neither in France nor in Germany is it being pushed; it may be that the authorities think it more important to their countries to encourage the cultivation of potatoes, from which alcohol is prepared by fermentation. Those who have been following the trend of this branch of chemistry can hardly fail to appreciate that synthesis of carbohydrates for food purposes is already on the horizon.

Ethyl alcohol is by far the most generally useful of the alcohols in pharmacy and medicine. It is an important agent in the extraction of active principles from drugs, and is largely used in the manufacture of perfumes. The excise duty on ethyl alcohol is, however, so high that it is natural that search should be made for substitutes which would serve the purposes of ethyl alcohol, but be cheaper. Several proprietary preparations are in fact now on the market as substitutes for ethyl alcohol. By far the most important constituent of these is iso-propyl alcohol, which can be bought, roughly, at about half the price of ethyl alcohol. This alcohol has been used in lotions and as a vehicle for external medication, for washes, gargles, dentifrices, and particularly in perfumery. An Interdepartmental Committee is now sitting to consider the question of ethyl alcohol substitutes, particularly in reference to its bearing on revenue, trade, and public health, and the uses to which these substitutes may be put.

Pure iso-propyl alcohol is a colourless liquid with an alcoholic odour; it is miscible with water; its boiling-point—82.4° C.—is higher than that of ethyl alcohol—78.5° C. Commercial varieties may contain traces of aldehydes and ketones, which impart a disagreeable taste and smell. Iso-propyl alcohol is absorbed more slowly than ethyl alcohol, and its effects are somewhat different. It will be remembered that ethyl alcohol has a selective action on the more recently developed portion of the central nervous system, the so-called higher centres, and the good-humoured liveliness of the moderate consumer of alcoholic beverages is due to a relatively greater sedative effect on the controlling centres than on others. This effect is much less pronounced with iso-propyl alcohol; it partakes rather of the nature of a hypnotic than a "stimulant," and gives no satisfaction to the spirit drinker. Even in America, where almost every available substitute for alcohol has been used, it finds no favour. Its toxicity, weight for weight, is certainly greater than that of ethyl alcohol, but probably not twice as great. So far as our information goes, no ill effects can result from the absorption of a few cubic centimetres, such as might occur when it is used as the vehicle in a mouth-wash, douche, or dentifrice.

THE PANEL CONFERENCE.

The chief subjects considered by the Annual Conference of Representatives of Local Medical and Panel Committees last week—a full report of which appears in the Supplement (p. 189)—were the procedure in connexion with complaints against insurance medical practitioners, and the increase in claims for sickness benefit in its relation to medical certification.

The procedure in connexion with complaints is the administrative matter which is at present most in the minds of insurance practitioners; and, indeed, the Representative Body of the British Medical Association has this year declared it to be of fundamental importance to the whole profession. The report of the Insurance Acts Committee to the Conference contains a letter sent in July last by the Committee to the Minister of Health (see Supplement, August 14th, p. 117). This letter placed clearly and strongly before the Minister the points to which it was desired to direct his immediate attention. Whereas up to the time of the receipt of this letter the attitude of the Ministry seems to have been entirely negative and unhelpful, two letters quite recently received from the Ministry indicate a more complete realization of the position and of the need for some drastic modifications of procedure. Both of these letters were placed before the Conference, and one of them was published in the Supplement of October 16th (p. 173). The proposals made in these communications relate to (1) the control of those Medical Service Subcommittees which have a tendency to ignore the time limit within which complaints must be lodged; (2) irregularities on the part of approved societies or their agents with regard to medical certificates; (3) an appeal from the decision of the Minister in certain classes of case. On the first two matters the Minister appears to go as far as can reasonably be expected at the moment. He is prepared to "require that the decision in the first place as to whether a complaint should be heard by the subcommittee should be given by him in any case in which the chairman proposes to investigate a complaint not made within six weeks after the event giving rise to it and the practitioner objects to an investigation taking place on the ground that unreasonable delay has occurred in submitting the complaint"; and to consider an amendment of the law which might give him power to impose penalties in cases in which there is irregularity on the part of approved societies or their agents with regard to medical certificates.

It was the third of these points, relating to disciplinary procedure, which led to an important debate at the Conference. For some years past there has been before the Annual Panel Conference a resolution asking for an appeal to the courts from all decisions of the Minister on disciplinary matters. In this wide

British Medical Journal.

SATURDAY, OCTOBER 30TH, 1926.

VOLUNTARY HOSPITALS AND THE BODY POLITIC.

Voluntary hospitals are institutions of such mark that it is inevitable that the attention of publicists and officers of the State should be drawn to them. Indeed, they are clamant of attention, without which they cannot accomplish the work for which they exist. They make a twofold claim: a claim on the individual and a claim on the community of individuals—the State. And the claim is recognized by both. On the reverse side also a twofold claim is made: the individual (whether patient or benefactor) looks to the hospital for certain effects, and the body politic (through its representatives) looks to these hospitals for maximum effects upon the public health.

In the days when the bulk of our hospitals were founded, less than two hundred years ago, the idea of their founders was clearly individual—the cure of the sick man, woman, and child. It was the response made by an individual to an individual, of the well and able to the unwell and unable. There appears to have been little, if any, thought of a community effect. Indeed, at that time the State was callous to the last degree towards the lives of its citizens. Its laws were brutal, its tolerance of evil shocking. "Gin Lane" was justified in the interests of agriculture! The awakened conscience of individuals broke through social neglect, and to-day the appeal of the awakened social conscience is so vehement that it is thought by some to threaten to shoulder out individual effort. But a visit to only one hospital (or even the surgery of one private doctor) will calm such apprehensions. There, it is one to one, doctor to patient, nurse to sufferer—a complete absorption in a single aim. And this is as it must ever be. The attitude is not a limitation of view. It is the continuation of the spirit of pious founders which aimed at an individual recovery truly, but it embraces the larger view of a better public health, for only by health in the individual can there be health in the body politic. Both in religion and in medicine the eighteenth century reformers aimed at individual salvation, but as "he which converteth a sinner . . . shall cover a multitude of sins," and he who cures a sufferer will relieve a host of ailings, so each secured an effect wider than the immediate, and each advanced the public weal.

Nevertheless, there is a change of attitude to-day. The advancement of the idea of public health, and the high position it has attained—and rightly so—in the public mind, has brought to the forefront the problem of co-ordination of effort. The field of endeavour is too precious to allow of waste, of overlapping, or of competition. Although there is in effect now existing a high degree of co-ordination of effort between State hospital and voluntary hospital, as between private practitioners and public health officers, secured by mutual accommodation and good-will, yet there is evidence of a desire for something more than this as between the hospitals—for some formal alliance or scheme of co-operation. This desire was pointed by a speech made by Mr. Neville Chamberlain, the Minister of Health, at the Coventry and Warwickshire Hospital on October 19th. He said that public health could not be treated in water-tight compartments, and that in any survey of the general health question the part played by huge public institutions like the voluntary hospitals could not be left out of account. He thought the time had nearly come when the voluntary hospitals might be fitted into some scheme covering a wider field than any that had hitherto been formulated. Then followed the suggestion that a time would come when those responsible for the conduct of voluntary hospitals might be represented on some central health authority upon which would rest the responsibility of the general hospital policy of the area. In return for a certain subordination of their complete and absolute freedom to do what they liked the voluntary hospitals might be willing to receive some further assistance than that they got at present; under a system of that kind a central authority upon which the voluntary hospitals would be represented might lay down in the broadest possible outline the principles upon which questions such as extension should proceed, while leaving to each individual unity the widest possible freedom in the administration and conduct of its work.

Mr. Chamberlain hoped that the idea would not frighten his audience. It will not frighten doctors, at any rate. The British Medical Association has already faced the problem, and published its considered opinion in the *Hospital Policy of the Association*. In 1923 the Representative Body adopted a series of resolutions on the co-ordination of voluntary, Poor Law, and municipal hospitals. It held that there was danger in the overcrowding of voluntary hospitals, and the isolation and understaffing of Poor Law hospitals. It urged the extension of the principle of the Local Voluntary Hospital Committees (set up under action taken on the report of Lord Cave's Committee) so as to make them co-ordinating bodies for all hospitals, to ascertain the hospital accommodation existing and required, both as regards general and special hospitals, centres in rural districts, and convalescent homes. And that "the Committees should not interfere with the domestic autonomy of the several hospitals of whatever type within their areas, but act only in an advisory capacity; each type of hospital should be encouraged to work upon those lines of local initiative which have proved so vital in hospital work." It also conceived the enlargement of the Voluntary Hospitals Commission into a Standing Consultative Hospitals Committee as a "buffer state" between Ministry and local hospital committees. There is in these citations sufficient likeness to the ideas expressed by Mr. Chamberlain to make us hope that when he comes to formulate legislative proposals which must affect the Poor Law hospitals, co-ordination of effort may be secured without injuriously cramping individual effort.

It is satisfactory to find that though certain passages in his speech at Coventry have been taken to mean that the policy of the Ministry of Health is to secure the subordination of hospitals and of the medical profession to the Ministry—or, in other words, to secure what is primarily called a State Medical Service—Mr. Chamberlain has repudiated this interpretation. He has stated, first, that the general practice has been, and will continue to be, to have recourse in the greatest possible extent to the private practitioner "on terms which are the regular subject of discussion with the British Medical Association and with the responsible local authorities"; and, secondly, that his policy in regard to the hospital question is based on the same principle. He is, he says, and always has been, a firm supporter of the voluntary hospital system.

issue (p. 775) with which Dr. Samuel Johnston of Toronto opened the Section of Anaesthetics, over which he presided, at the Nottingham meeting of the British Medical Association. For future advance in anaesthesia Dr. Johnston looks to the efforts of the International Anaesthesia Research Society, a body which demands for its Record the evaluation of surgical and anaesthetic risk before operation, pre-operative therapy, five-minute blood pressure guides during the operative period, and post-operative therapy and care in order to reduce morbidity to a minimum. We are not sure that the British surgeon would accept the ideal of Dr. McMechan of Ohio that the anaesthetist "should dominate the preparation of the patient, the patient himself during induction and maintenance of the anaesthetic, and the after-treatment during the post-operative period." Dr. Johnston desires that every medical practitioner should be qualified to give safely, pleasantly, and efficiently such anaesthesia as may be required in painless childbirth and in minor surgery. Some of the specially trained and experienced anaesthetists would be required for hospital work in smaller towns. After years of practice such anaesthetists might look forward to staff positions of similar importance to those of the anaesthetists who have been elected to the teaching staffs of hospitals in large centres. To provide all these categories teaching in anaesthesia is necessary; and the teaching anaesthetist must be the liaison officer between the research laboratory of the medical school and the surgical department of the hospital. Dr. Johnston speaks with pride of the system of anaesthesia that has been developed in the Toronto General Hospital, where there is now a department consisting of a chief and eight assistants, all of whom are specialists in the art. The chief is a member of the medical advisory board of the hospital. He is also lecturer in anaesthesia in the Faculty of Medicine of the University of Toronto. It is interesting to note that earlier in the month of July Dr. Stuart Ross gave his presidential address on "The provision of an anaesthetic service" (summarized at page 789) to the Scottish Society of Anaesthetists, the report of whose meeting has just reached us. Dr. Ross had taken the trouble to elicit answers from anaesthetists, attached to medical schools in this country and the dominions, to various questions on the teaching and organization of anaesthetics. He appears to have found that in the larger schools in England matters were fairly satisfactory, but that in Scotland the position was by no means happy, and that there had been a substantial post-war rise in the death rate from or under anaesthetics. Furthermore, the figures produced by Dr. Ross seem to show that the proportion of anaesthetic deaths in Scotland which occur under chloroform or mixtures containing chloroform is extremely high. Dr. Ross thinks that the significance of the figures for chloroform is open to doubt. They are certainly surprising in a country which has always prided itself on the method adopted for the administration of this anaesthetic. The moral of the investigations by Dr. Ross, no less than of the opening address of Dr. Johnston, seems to be that the advance of surgery needs a corresponding advance in methods, teaching, and research in anaesthetics; and that improvement in the status of the anaesthetist will conduce to this advance. So that perhaps we may agree with Dr. Johnston that "it is not too much to hope for the establishment in the near future of a chair of anaesthesia in every university where medicine is taught."

NEW HOSPITAL CENTRE FOR BIRMINGHAM.

In order to meet the growing need of Birmingham for hospital accommodation, the Hospital Council in April last invited the governing bodies of the General and Queen's Hospitals to consider a scheme for a new hospital centre, to be erected on a site adjacent to the University at Edgbaston. The invitation was accepted and a joint committee appointed. The committee recommended that the new centre should be under the joint control of the General and Queen's Hospitals, which should be amalgamated for all purposes; that the unified board of management should have at its disposal a minimum of 1,200 beds; and that the new hospital centre should start with a minimum of 750 beds. The committee points out that the existing hospitals serve not only the population of Birmingham, approximately a million people, they have in addition to meet demands from a radius of more than thirty miles from the city, embracing a population of about three millions. The magnitude of the problem is apparent, and in considering it the committee had in view three main elements: (1) the provision of additional beds; (2) provision for out-patients and casualties; (3) the maintenance of the medical school. With regard to additional beds, the present deficiency is from 600 to 800. It is calculated that the total requirements in five years' time will be not fewer than 2,400. This will mean that 600 extra beds will be required in voluntary hospitals by 1931, the remainder being provided in the hospitals of the guardians of the poor. The departments for out-patients and casualties will have to expand proportionately. The medical school is at present split up, the hospitals being at some distance from the scientific departments. The removal of the medical faculty to the actual site of the hospital centre would bring about the necessary unification. These considerations can be satisfied by the erection of the new hospital centre on the proposed site. The scheme has been given a splendid send-off by the gift to the city of an area of 150 acres of land adjacent to the University by Messrs. Cadbury Bros., Ltd., together with a donation of £5,000 towards the initial expenses of laying out the site. It is stipulated that as much of this land as shall be agreed upon by the City Council and the Hospitals Council in consultation shall be secured for hospital purposes, and shall be leased to the hospital authorities at a nominal rent.

MODERN HOSPITAL ABUSE.

A new Division of the British Medical Association has been formed at Windsor. This is a matter for congratulation. It was an anomalous situation that there was no Division in the royal borough where is the chief residence of the Patron of our Association. We wish the new Division much success in its work. At the inaugural meeting under the presidency of Dr. F. J. Hathaway, the chairman of the Division, an address was given on the subject of "The modern hospital conception" by Mr. N. Bishop Harman. Incidentally, he dealt with a new form of hospital abuse. Abuse by individuals was, in his experience, diminishing owing to the efficiency of the modern almoner system; he held that in a full development of hospital facilities for all classes there would be no hospital abuse. But there was an increasing volume of abuse arising from the exploitation of the hospitals and their staffs for the treatment of industrial disease and accident. Yet no arrangements were made for meeting the costs to the hospitals, which were heavy, as for remuneration of the medical staffs. The companies gained materially, and their shareholders benefited, by the good treatment given to these patients in hospitals. So also with the numerous road accident cases. In the discussion that followed the paper it appeared that the King Edward VII Hospital, where the meeting was held, was a particularly heavy sufferer from this form of abuse. We have received also reports of a discussion on this same subject at the quarterly meeting of the governors of the Royal Devon and Exeter Hospital. Here the matter was raised by the lay members of the board. The *Hospital Policy of the British Medical Association* contains a paragraph on

form the proposal has never yet been endorsed either by the Insurance Acts Committee or the Conference. There are obviously some very grave objections to it, and the letter of the Committee to the Minister dated July 5th, with the Minister's reply dated October 9th, make it clear that these are recognized on both sides. It is nevertheless true that there is a manifest and strong feeling in the medical profession that there must be some protection against unreasonable action on the part of any Minister beyond that which is at present afforded by a possible appeal to the courts on the ground of irregular procedure, and that it is intolerable that the Minister should determine any issue which is of a purely professional character. The suggestion of the Committee and the Conference is that there should be certain defined classes of case in which an appeal should lie. The suggestion of the Minister is that in the most important class of case indicated he should be guided by an advisory committee composed of "independent practitioners of recognized standing whose impartiality could not be questioned." He states that he would be prepared to accept nominations by the Insurance Acts Committee of a "small panel of practitioners regarded as suitable to act in this capacity, from among whom would be selected those whose advice would be sought in particular cases." The Minister recognizes that the definition of the class of case to be referred to the advisory committee, and various points of detail of procedure, must be the subject of careful consideration with the profession; but assuming that these matters are satisfactorily determined, and assuming, of course, that the Minister would in fact accept the advice given on questions involving medical issues, the proposal seems to afford a hopeful basis on which a satisfactory solution of a difficult matter may be founded. The Conference decided that the Insurance Acts Committee should negotiate with the Ministry with a view to such a solution.

The other main subject before the Conference was brought to its notice in an entirely unofficial, frank, and confidential manner by Sir Walter Kinnear, controller of the Ministry's Insurance Department. Such occasional and informal visits from officers of the Ministry with a view to placing the Conference in full possession of facts necessary for the formation of a sound judgement are very welcome and useful, and Sir Walter Kinnear's was no exception. The seriousness of the position which may arise indirectly from the great increase of claims to sickness benefit during the last few months was fully appreciated by the Conference. The explanation of this increase is probably not so simple as is sometimes assumed, and the question is not without its difficulties; but in this connexion a doubt may certainly arise as to whether some practitioners when giving certificates may not be unduly influenced by the economic circumstances of the patient rather than guided solely by the consideration of capacity for work as required by the Insurance Act; and as to whether the extreme ease with which an insured person may change his doctor may not carry with it some unfortunate disadvantages. The resolution passed by the Conference asks the Insurance Acts Committee to consider what practical steps can be taken to meet the situation, and the representatives pledged themselves "to use their influence locally in endeavouring to secure strict adherence to the principles governing certification for the purposes of the National Health Insurance Acts." If the Insurance Acts Committee can successfully carry out its mandate on these important matters, this year's Conference will prove among the most fruitful of the series.

SICK HEADACHES.

The full report with which this issue opens, of the discussion on migraine at the Annual Meeting this year, is, we venture to say, well worthy of study by general practitioners, especially those who have among their clients any considerable proportion of the professional and business classes. To such a person the recurrence of severe headaches is a serious handicap; to ascertain their cause becomes a matter of first-rate importance. The investigation of migraine is always embarrassed by the difficulty of definition. We must give up hope of being helped by etymology, for the word is a French contraction of hemicrania, and the pain is not by any means always one-sided. Dr. Edwin Bramwell, in opening the discussion, spoke of the classical attack of migraine as comprising "an aura which is characterized by visual and it may be other phenomena indicative both of local and general disturbance of cerebral function, headache which is typically frontal and predominantly unilateral, nausea and vomiting." But he had at once to qualify this by stating that the headache might occur alone, that, in children particularly, vomiting might be the only symptom, and that the visual disturbances, the paraesthesia, and the palsies, any or all of which may attend the headache and vomiting, may occur without either but in circumstances which point to their migrainous nature. Dr. E. I. Spriggs, who made an interesting practical contribution to the discussion, took as a working definition "a periodic headache usually with some kind of aura, going on to vomiting, beginning in childhood or youth, and often hereditary." As to the etiology of true migraine, it seems to be agreed that there must be a predisposition, usually hereditary, which enables a rather long and diverse list of determining causes to act, but as to the actual mechanism of the attack there is no such unanimity. Dr. Bramwell sees in it a vascular derangement, a localized spasm of the cerebral arteries during which the aura and other prodromal symptoms occur, followed by a relaxation, when the headache due to engorgement of the meningeal vessels is the chief symptom. Dr. Gordon Holmes would not accept this view, and sought an explanation in a local swelling of the brain due to a temporary disturbance of the osmotic relations of its substance to the fluid in which it is bathed; this swelling could be supposed to produce the aural palsies, and by pressing on the meningeal nerves to cause the headache. Dr. Timme of New York took the opportunity of expounding his theory, which is that the symptoms are caused by growth in size of the pituitary body raising the intracranial pressure locally and generally, but he said also that migraine was a term which covered a number of conditions; this brings us to what we conceive to be the value of Dr. Spriggs's statistics. He took one hundred cases in which the major symptom for which the patient had been induced to apply for treatment was headache. Of these in twelve only was the diagnosis of migraine made, whereas in thirty-seven the attacks were considered to be due to some gastric condition, which in twenty-three instances was constipation. Reference was made to cases in which the symptomatic treatment of that condition, leading to regular natural action, cured or greatly diminished the migraine. The upshot of this is that any case in which there is a temptation to make the diagnosis of idiopathic migraine should be very thoroughly overhauled in search of some lesion or disorder, perhaps gastro-intestinal, the cure of which will check or possibly arrest the migraine. This surely is a useful hint.

PROGRESS IN ANAESTHESIA.

It is natural that the opening address in a discussion devoted to the future of a specialty should combine a paean for past triumphs with the promise of future victories. So it is with the inspiriting paper published in our present

colleagues, holding the view that without crescent carriers the wide spread of tropical malaria is impossible, and that plasmochin alone or in combination with quinine destroys the crescentic sexual forms of the parasite occurring in the severest tropical forms, consider that the new synthetic remedy may prove of value in the cure and prevention of the spread of malaria.

THE ART OF TRANSLATION.

In the *English Review* for October there is an article by Dr. E. W. Adams on translation and the translator. In it Dr. Adams is concerned to defend the translator from the accusation *traduttore traditore*, while pointing out the difficulties with which he is beset. Dr. Adams does not agree with Emerson that all that is best in a book is translatable; but no man can have all languages at his disposal, so that the translator becomes an invaluable middleman whenever it is impossible to deal direct with the original producer. According to Dr. Adams, thought is naked when first conceived within the brain, and as it roams the chambers of the mind it gathers the apparel of language, the relation of which to thought is so intimate that to separate the two is not to strip but to flay. How Dr. Adams arrives at the conception of a naked thought we are not sure, since most people must think in terms of language, unless, like the deaf and dumb, or the artist and musician, they think in terms of vision. However this may be, the garment of language is appropriate to the nationality and mental make-up of the thinker and his reader, so that it would be impossible, says Dr. Adams, to translate the thoughts of Keats or Shelley into the holophrastic language of the people of Tierra del Fuego. These are circumstances in which translation must fail. Again, there is the difficulty of reproducing the rhythm, cadence, or harmony of the language in which the thought was enunciated. Nevertheless, the translator is an expert in his own line, and is comparable to a ferryman, bearing goods of price of which he is the owner as well as the goods of another. He unloads a mixed cargo at his home port. In a translation, says Dr. Adams, "an author cannot speak to you through yourself." You cannot conduct a conversation *à deux*, but must take with you to the interview a third person in whom you are not greatly interested. But it is better to interview an immortal through an interpreter than to have with him no speech at all. And there Dr. Adams leaves it. It seems to us that Dr. Adams has not discriminated between different classes of translator. Perhaps it is impossible to reproduce in a foreign tongue the thought of the poet and of the imaginative writer, though thoughts on canvas, in stone, or in melody can appeal with equal force to many nationalities. Not only are the nuances of language different and difficult to reproduce; the thoughts themselves have different appeals to different races. But these difficulties should not beset the translator of scientific works. In them the ideas can be reproduced provided the translator himself thinks in terms of his own language. The failure to do so makes him a bad translator.

LAY AID IN MEDICAL PROPAGANDA.

The American Association for Medical Progress was constituted in New York City, and local branches are now being formed in various States. We have received the first annual report of the Santa Barbara County Branch. From this it appears that the association was formed for the purpose of disseminating authentic medical knowledge more widely amongst laymen, emphasizing particularly the results gained by medical research and its application to sanitation and other activities for human and animal welfare. An important part of the work of the association is similar to that of our Research Defence Society. Thus one of its objects is "to resist the efforts of the ignorant or fanatical persons or societies constantly urging legislation dangerous to the health and well-being of the American people." In pursuit of this object the association made inquiry of all the medical colleges and research institutes in the United States as to how far the public was at liberty to visit medical laboratories. As a result a long list has been gathered of laboratories for animal experimentation at which any responsible person is admitted; or officials of humane societies are particularly welcome; or responsible persons are admitted, but those who have seen an operation on the human being are preferred; or accredited officers of humane societies are admitted; or only officials of humane societies who have seen an operation are allowed entrance. In all medical schools and research institutes certain rules are observed. Wandering dogs and cats brought to the laboratory are kept for a time for return to their owners if claimed. The animals are kept in the best sanitary condition. No operations are performed without the sanction of the director of the laboratory. If an operation is likely to cause greater discomfort than that attending anaesthetization, the animal is rendered incapable of perceiving pain. Exceptions to this rule can only be made with the approval of the director. In all cases possible the animal is killed painlessly at the end of the experiment. The American Distemper Committee has attempted to get in touch with the so-called humane societies by pointing out that their aims are similar—namely, the prevention of suffering in animals; but from the report of the American Association for Medical Progress the effort does not seem to have met with success. The association seems to be carrying on a large amount of publicity work, and hopes to protect the public against plausible quackery by constant reiteration of the elements of knowledge in non-technical language. As the branches of the association are controlled by means of a lay advisory board and a medical advisory board, there seems every reason to suppose that this lay effort in the dissemination of medical knowledge will keep within the bounds of what is authentic and legitimate.

THE BOARD OF CONTROL.

On the recommendation of the Minister of Health, the King has been pleased to appoint Dr. Robert Cunyngham Brown, C.B.E., to be a Commissioner of the Board of Control, to fill the vacancy caused by the retirement of Dr. R. W. Branthwaite, C.B. Dr. Cunyngham Brown was originally in the Prison Medical Service; afterwards he became Deputy Commissioner of the Board of Control for Scotland. During the war he served with the Salonika Force, and then became D.C.M.S. Ministry of National Service and Deputy Director-General Medical Services, Ministry of Pensions. He retired some years ago, and we are glad to know that his great abilities are again to be at the service of the country.

PROFESSOR SCHMIEGELOW'S JUBILEE.

A little time ago we announced that the seventieth birthday of Dr. E. Schmiegelow, professor of oto-laryngology in the University of Copenhagen, would be celebrated on October 13th. On that day there was a large attendance to hear his last lecture at the Rigshospital before finishing his active career there both as head of the clinic and as professor. That he is not without honour in his own country was shown by the manifestations of esteem and regard from his townsmen and compatriots, who presented him with a striking portrait of himself painted by the well known Danish artist Henningsen. In addition, the brotherhood of laryngologists in other lands united to present him with a bas-relief portrait in bronze by the Swedish artist Gösta Carrell. This had been subscribed for

the relation of insurance companies to hospitals, but things move so fast that it is hardly definite enough to meet present-day conditions. It reads: "Greatly extended support to voluntary hospitals should be sought from employers and insurance companies, seeing that they benefit largely, both directly and indirectly, by the services of the voluntary hospitals." Mr. Bishop Harman cited a precedent in the practice of the State of New York, where the law lays the onus of payment for the medical treatment of compensation cases upon the employers and the insurance companies. That, he thought, afforded an indication of what might be done in this country.

LESSONS FROM TISSUE CULTURES.

THERE would seem to be no better method of studying the biology of cells than that of culture *in vitro*. The cell can be isolated and its inherent powers of growth and differentiation studied under conditions which can be varied at the will of the observer. Further, by the method of tissue culture the mutual relations of cells and the influence of one type of cell on another can be investigated. Since Harrison, some twenty years ago, watched the growth of the isolated spinal axis of the embryo frog in lymph the method has been used by numerous experimenters, in regard to both normal and pathological cells, and the technique has been brought to great perfection, chiefly through the work of Carrel and Burrows. Before, however, it can be usefully applied in pathological research it is necessary that the biology of the normal cell shall be fully worked out, and in this direction considerable progress has already been made. Some very interesting investigations on the normal cell have recently been recorded by Strangeways and Fell. They have shown[1] that if the undifferentiated limb-bud of the embryonic fowl is cultivated *in vitro* it undergoes a considerable amount of progressive development; well marked differentiation of tissues and distinct indications of the formation of limb-segments occur. Recently[2] still more remarkable results have been obtained with cultures of the embryonic eye of the fowl. The embryos were incubated for sixty-four to seventy-two hours; one eye was dissected out (the other being left for purposes of control) and grown in a centrifuge tube containing a mixture of embryo extract and plasma. When first explanted the eyes appear as minute colourless bodies which are difficult to distinguish with the naked eye. After twenty hours' growth the optic cup has enlarged and is seen as a small grey vesicle surrounded by a diffuse growth of mesenchyme. By the second day the explant has about doubled in size and the pigmentation has increased, so that the eye is dark grey in colour. The rate of growth is greatest between the second and fourth days of cultivation; after that it falls off rapidly, the maximum size being reached about the eighth day. Examined histologically the eye, in the earliest explants, consists merely of an optic cup composed of two layers of undifferentiated cells containing little or no pigment, and a simple lens vesicle, the wall of which is of uniform thickness without any local thickening indicative of the future lens. In this simple structure the authors were able to follow the development of pigment, the different zones of the pars optica of the retina (rods and cones, inner and outer nuclear layers, inner and outer plexiform layers, ganglion cells, and nerve-fibre layer), the pars ciliaris retinae, and the fibres of the lens. This remarkable differentiation of the structures of the eye took place in the normal manner, and, in the later stages, at almost the normal rate. The authors draw special attention to the disparity which is observed between the rate of growth and the rate of differentiation. After seventeen days' growth the retina may exhibit a histological structure almost equivalent to that of the retina of a day-old chick, whilst the greatest length of the explant is only 1 to 2 mm. It therefore appears that inhibition of normal cellular multiplication is not necessarily correlated with inhibition of normal tissue differentiation. Another instance of the value of this form of research is that relating to the effects of irradiation upon mitotic cell division. Strangeways and Oakley observed[3] that when a tissue culture in which cell division is active is subjected to small doses of x rays, a decrease or complete disappearance of mitosis occurs. A closer examination of this result has led to the following interesting conclusions.[4] The earliest recognizable effect of x-radiation upon growing cells is the temporary inhibition of the onset of mitotic division in the majority of those fully formed vegetative cells which are about to divide, while cells actually undergoing mitosis are unaffected; but if a cell, immediately prior to the visible prophase, is subjected to a dose of x rays above a certain strength, it will enter mitosis, but the process of division will be of an abnormal type and may result in complete disruption of the cell. Variation in the quality of the incident beam of x rays appears to have little or no effect, and no evidence was forthcoming that the rays exercise any stimulating effect on cell division.

[1] *Proc. Roy. Soc.*, B, vol. 99, 1926, p. 340.
[2] Ibid., vol. 100, p. 273.

A SYNTHETIC REMEDY FOR MALARIA.

CHEMISTS have tried for many years to produce synthetically quinine and its allied compounds, and at the eighty-ninth conference of Naturforscher und Ärzte at Düsseldorf in September communications were read on a new synthetic remedy for malaria, "plasmochin." It is an alkaloid with certain genetic relations with quinine. Its action on canaries experimentally infected with bird malaria has been tested in the zoological laboratory by Dr. Roehl of Elberfeld, who devised a quantitative method for the purpose. Professor Sioli of Düsseldorf has used it also for the treatment of general paralytics artificially infected with benign tertian malaria. The effect on the temperature, number of parasites, and general well-being was satisfactory; the upper limit of dose was determined by the appearance of cyanosis. Finally, the drug was tried by Professor Mühlens and others at the Hamburg Tropical Diseases Institute, where 134 patients with malaria contracted in various countries were treated from August, 1925, to the date of his report; they were mostly chronic or relapsed cases previously treated with quinine. The results generally were satisfactory, and the effect of the drug is now being tested in recent cases of malaria by Professor Mühlens in the Balkans, by Dr. Roehl in Spain, and by Professor Memmi and Dr. Schulemann in Italy. Some of these cases were treated with plasmochin and quinine prescribed in combination. In the Balkans and Italy no relapses of tertian malaria have occurred within six weeks of treatment; in Italy recurrence of tropical malaria was occasionally observed, but this, it is noted, may occur after treatment with quinine even when large doses are used. A point is made of the ease with which children, and even babies, accept the treatment; the drug is often administered to them in a suspension. The haemoglobin content of the blood has been observed to increase, and rapid decrease of the enlargement of the spleen during treatment has been observed; this, it is held, tends to show that the blood cells are not injured. Several cases of blackwater fever have been treated without any untoward results; among them were two in which quinine was thought to have produced haemorrhages. The compound of plasmochin and quinine is being used for prophylaxis. Professor Mühlens and his

[3] Ibid., vol. 95, 1923, p. 373.
[4] Strangeways and Hopwood: Ibid., vol. 100, 1926, p. 283.

THE BRITISH ORTHOPAEDIC ASSOCIATION.

Ninth Annual Meeting.

A meeting of the British Orthopaedic Association was held in London on October 22nd and 23rd. The first morning meeting took place at the house of the Royal Society of Medicine.

After the short business session, Mr. H. A. T. Fairbank, the President, gave a presidential address on "Some general affections of the skeleton, including achondroplasia, osteogenesis imperfecta, and osteomalacia." He showed a large number of clinical photographs and radiograms illustrating the various points in the correlation of certain of these obscure bone conditions.

Discussion on Injuries of the Carpus.

The subject for discussion at the morning session was injuries of the carpus. Mr. Max Page, who opened, commented on the fact that the knowledge of this complicated subject was of comparatively recent date. He quoted largely from Mouchet, Destot, and Kellogg Speed, and presented a simplified classification based on the findings of the French school. He dealt in some detail with the treatment and prognosis. Mr. S. T. Irwin gave a careful analysis of the records of the Royal Victoria Hospital, Belfast, during a five-year period. He reported the incidence of each particular fracture, the period of disability, and the functional end-result. Mr. Harry Platt suggested a classification, similar to that of Mr. Page, and reported in detail the results of carpal injuries from his fracture clinic at Ancoats Hospital, Manchester, over a period of five years. Mr. Thurstan Holland, Mr. Ollerenshaw, Mr. R. C. Elmslie, and Mr. St. J. D. Buxton carried on the discussion. Sir Robert Jones gave the results of his great experience, and described the treatment he was accustomed to employ. He said that, with a fractured scaphoid, if the wrist moved freely under anaesthesia, he immobilized for three weeks in dorsiflexion, and the end-result was good. He had found that if the wrist did not move easily under the anaesthetic prognosis was less good. He did not consider that removal of the whole or part of the scaphoid, although sometimes necessary, resulted in a perfect hand.

Clinical Meeting.

A clinical meeting on Friday afternoon was held at St. Thomas's Hospital. Two operations were first performed, Mr. Bristow removing a torn cartilage from the knee-joint and Mr. Page performing arthrodesis of the hip. Then followed a clinical demonstration. Mr. Bristow showed a group of patients treated in the orthopaedic department of the hospital, illustrating points of interest in the surgery of the joints and bones. The first group illustrated the results obtained from modified arthroplasty of the hip, the reconstruction operation devised by Whitman—namely, excision of the head, remodelling of the neck, and lowering of the trochanter; three patients upon whose hips arthrodesis had been performed were shown for comparison. Four patients illustrated the end-results of the treatment for recurrent dislocation of the shoulder; one cured by a deltoid muscle sling, one by repair of the glenoid ligament after the Clairemont-Erlich operation had failed; the other two patients were cured by a bone operation to raise the rim of the glenoid fossa, the glenoid ligament being found torn and so shrivelled as to be incapable of repair. Two patients illustrated reconstruction of the elbow-joint, and one in whom a fractured internal epicondyle had been removed from the interior of the joint. This patient, whose elbow was stiff for some long time, had recovered full movement. Two patients in whom arthrodesis of the ankle-joint had been done for old malunited Pott's fracture were shown walking well and without pain. Other patients illustrated the result of repair of muscle and tendon, bilateral rupture of the ligamentum patellae repaired by a free fasciae graft, and bilateral rupture of the quadriceps by transplantation of tensor fasciae femoris to the patella. Cases were shown of chronic sclerosing osteomyelitis (Garré), fibrocystic disease of the neck of the femur dealt with by curetting and grafting, haemophiliac knee, and adolescent coxa vara treated by open operation. A group of patients with affections of the knee-joint were demonstrated, illustrating the end-results after synovectomy, cheilotomy, and patello-femoral arthroplasty. Mr. Page showed two patients in whom he had removed five inches of bone from the femur to shorten the leg, and a patient who was cured of a clicking jaw by the removal of the interarticular cartilage.

The members were entertained to tea in the Shepherd Memorial Hall by the kind invitation of Miss Lloyd Still, the matron of St. Thomas's Hospital, after which a short visit was paid to the orthopaedic wards. Dr. J. B. Mennell then gave a demonstration in the massage department of the methods he employed in manipulating the joints. He explained the various points of his technique.

The Association's Dinner.

In the evening a most successful dinner was held at the Café Royal. Mr. Fairbank, the president, was in the chair, and some eighty members and their guests were present. His Majesty King Manoel, the most distinguished honorary member of the association, made a graceful speech in response to the toast of his health. Sir Arthur Stanley, treasurer of St. Thomas's Hospital, replied, in a witty speech, to the toast of the guests, which had been proposed by Sir Robert Jones. Sir John Bland-Sutton proposed the health of the association, and the President replied. Professor Murk Jansen of Leyden then proposed the health of the President. The guests of the association included Sir Arthur Stanley, Sir George Makins, Sir John Bland-Sutton, Sir James Berry, Sir Cuthbert Wallace, Sir Dawson Williams, Sir Squire Sprigge, and many other distinguished members of the profession.

Short Communications.

Saturday morning was devoted to short papers. Mr. E. P. Brockman reported several cases of renal rickets, and showed a series of radiograms. He also showed a tibia from one of the patients and for comparison the tibia from a rachitic patient, and a normal tibia from a child of the same age. He had investigated the microscopic changes about the growth disc, and exhibited a series of coloured drawings illustrating the changes which he had found. The President warmly congratulated Mr. Brockman on his paper. Mr. Perkins reported the end-results of the operation of excision of the head of the first metatarsal bone in fifty patients, from the orthopaedic department of St. Thomas's. He found that from the patient's point of view the operation gave a good result in 96 per cent. of cases. He called attention to the fact that pain about the fore-foot was not relieved by excision of the head, and that free mobility must be restored to the toes. He suggested that the bad results associated in the mind of some surgeons with this operation were due to coexisting pain about the fore-foot, and that treatment for the two conditions should be simultaneously undertaken. Mr. Perkins's paper was discussed by Professor Murk Jansen, Messrs. Openshaw, Mitchell of Belfast, Elmslie, Armour of Liverpool, Bristow, Trethowan, Rocyn Jones, and others. Mr. Lambrinudi described an operation which he had devised for the cure of paralytic drop-foot, and showed two patients. Mr. Brockman reported a case of femoral aneurysm arising in a boy suffering from Pott's disease of the spine. He exhibited the vessel which had been excised by Sir Cuthbert Wallace, and a microscopic section of the artery wall showing local tuberculous disease. Mr. Brailsford (Birmingham) showed radiograms of the spine from patients illustrating spondylolisthesis—erosion of the bodies caused by aneurysm and the localization of a foreign body. Owing to shortness of time, papers by Mr. Max Page, Professor Murk Jansen, and Mr. Barnett, which were to have been presented, were taken as read.

Visit to Open-air Hospital.

On Saturday afternoon some forty members visited St. Nicholas's and St. Martin's Orthopaedic Hospital at Pyrford in Surrey. This open-air hospital of 160 beds, which

by friends and admirers from many countries, under the leadership of Gunnar Holmgren (Stockholm), who, in their name, presented it to the throat clinic of the Rigshospital. Amongst the representatives who supported him were numerous colleagues from Sweden and Norway, and amongst those from other countries were Burger (Amsterdam), Marschik (Vienna), Spiess (Frankfurt), von Eicken, Kuttner, and Flatau (Berlin), and StClair Thomson (London). The jubilee was further celebrated by a meeting of the Danish Oto-Laryngological Society presided over by Dr. Stranberg. The foreign delegates were made most welcome, with much private hospitality, especially from Messrs. Möller, Stranberg, and Schmiegelow.

PART-TIME EFFICIENCY.

Dr. L. J. Picton, part-time medical officer of health for Winsford, Cheshire, produces reports which are both entertaining and instructive. His report for 1925 includes a review of the progress made during the last five years, together with "any further action of importance . . . contemplated by the local authority or considered desirable—by me." The staple industry of Winsford is the manufacture of salt from brine. As the mortality rate from cancer at Winsford is no higher than elsewhere, the theory that salt has anything to do with cancer has, says Dr. Picton, no support. In consequence of the pumping of brine for salt manufacture the neighbourhood is very liable to subsidence. By floating the houses on a raft of concrete not only is the danger from subsidence provided against, but the dampness of houses, which the British Medical Association's Subcommittee on Rheumatic Heart Disease in Children regarded as an important cause of carditis, is prevented. The Winsford birth rate is the second highest in the country, the infantile death rate is low, and the illegitimate deaths were *nil*. Dr. Picton is very keen on improvement in the health conditions of his district, and at the same time wisely prefers settlement by amicable negotiation to the use of the iron heel of officialdom. Thus we find him anxious that school clinics should be established, and that ante-natal work should be developed; but in both cases he has approached the local practitioners on measures for carrying out his ideals. With the consent of his council he submitted to the Ministry of Health a scheme for paying the practitioners for a report on the ante-natal conditions of expectant mothers. The Ministry declined to give its approval because the Maternity and Child Welfare Act of 1918 refuses to "authorize the establishment by any local authority of a general domiciliary service by medical practitioners." Dr. Picton denies that his scheme makes any such proposals; but as the wording of the section in the Act suggests the influence of British Medical Association policy, he has no doubt considered the advisability of discussing the situation with the Association. Further evidence of Dr. Picton's talent for amicable agreement is shown in the arrangement by which butchers send meat which is condemned by the inspector to the gasworks for destruction, and thus avoid the publicity of seizure. Winsford seems to be a most fortunate area. The housing conditions appear to be quite good, with a house for every four inhabitants and four-fifths of the houses low-rented; the water supply is fair, and is being improved; venereal disease is comparatively negligible (when a V.D. centre existed the patients almost all came by train from other towns); and the hospital question is being settled by means of a small local hospital staffed by the general practitioners. Dr. Picton notes an unusual outbreak of nephritis following symptoms of influenza. As is natural in a disciple of Dr. Vivian Poore, he deplores the absence of earth-closets; and he makes a vigorous attack on patent foods for infants.

BEIT MEMORIAL FELLOWSHIP IN TROPICAL MEDICINE.

The trustees of the Beit Memorial Fellowships for Medical Research have under consideration the appointment of a Fellow to devote his whole time to research in tropical medicine. The appointment will be for five years at a salary of £1,000 per annum. If the research is conducted in the tropics the passage money out and home will be paid, and a grant may be made for necessary laboratory expenses. The deed of trust applying to all Beit Fellowships requires that every Fellow shall be a person of European descent by both parents, but otherwise of any nationality whatsoever who at the date of election shall have taken a degree in any faculty in any university in the British Empire approved by the trustees, or, if a woman, have passed the examination which would have entitled her if male to take any such degree. In exceptional cases the possession of a medical diploma registrable in the United Kingdom may be accepted in lieu of a degree. Applications, on forms to be obtained by letter only addressed to Sir James K. Fowler, M.D., Honorary Secretary, Beit Memorial Fellowships for Medical Research, 35, Clarges Street, London, W.1, must be received on or before February 1st, 1927. Candidates resident abroad should send written applications giving full particulars of their previous career, with references to any published scientific papers or other evidence of capacity for research. They should state the nature of the research they desire to undertake, and how it is proposed to attack the problems presented. No testimonials will be received, and canvassing the trustees or Advisory Board is forbidden. The candidate appointed will commence work at as early a date as possible.

CONFERENCE ON MENTAL WELFARE.

The postponed conference on mental welfare, under the auspices of the Central Association for Mental Welfare, will be held in the Central Hall, Westminster, on Thursday and Friday, December 2nd and 3rd, beginning at 10 a.m. each day. On the first morning there will be a discussion on the proper care of defectives outside institutions, with Sir Leslie Scott, K.C., M.P., in the chair, and in the afternoon the Right Hon. H. P. Macmillan, K.C. (chairman, Royal Commission on Lunacy and Mental Disorders), will preside over a discussion on borderland cases, to be opened by Dr. Edwin Goodall and Dr. Kemp Watson. On the second morning the training of teachers for special schools will be discussed, with Dr. H. B. Brackenbury in the chair and Lord Eustace Percy (President of the Board of Education) as the opening speaker; in the afternoon the subject of encephalitis lethargica and its after-effects will be introduced by Dr. A. F. Tredgold and Dr. F. C. Shrubsall, under the chairmanship of Sir Archibald Bodkin (Director of Public Prosecutions). Tickets entitling holders to admission to all sessions, and to advance copies of papers, may be obtained from the offices of the association (24, Buckingham Palace Road, S.W.1) at a cost of 5s.

The Hunterian Oration before the Royal College of Surgeons of England will be delivered by the President, Sir Berkeley Moynihan, Bt., on Monday, February 14th, 1927. Professor G. Elliot Smith's Thomas Vicary Lecture on "The significance of anatomy" will be delivered at the College on Thursday next, November 4th, at 5 o'clock, and Mr. Ernest W. Hey Groves's Bradshaw Lecture on "Reconstructive surgery of the hip-joint" on Thursday, November 11th. The annual meeting of Fellows and Members will be held on Thursday, November 18th, at 3 o'clock.

immorality has been due to this, nor do I believe, as I have been told, that it is a result of teaching youths in the primary and grammar schools the anatomy and physiology of reproduction. It has probably been a result of all the factors mentioned in the preceding paragraph. There have been also many more real indications, such as tuberculosis and malnutrition; nephritis and cardiac diseases have not changed in frequency. A prominent obstetrician attributes it to (1) poverty, tuberculosis, malaria, and anaemia; (2) spread of atheism; (3) absence of shame on account of the legalization. He says that the number of people who attempt abortion without a doctor has not diminished.

There has been a great increase in the number of tubal pregnancies all over Russia in the past few years. This was at first attributed to the increase in abortions and the use of iodine in the uterus. However, as the increase has also been noted in the villages and country where abortions and iodine are not in vogue, this reason has to be discarded. Fewer cases of puerperal fever have occurred since 1918-19.

The percentage of eclampsia in pregnancy has not changed in the past eight years from its normal of 0.2. Its mortality in some of the hospitals has been 14 to 16 per cent. (Marinsky), but in the State Obstetrical Hospital where Professor Stroganoff works it has been kept down to about 1 per cent. Stroganoff's technique consists in keeping the patient in a dark room, and the careful administration of chloral hydrate and morphine at regular intervals. It has been described in the British Medical Journal (July 12th, 1924, p. 53).

Surgical Diseases.

The first important surgical conference in Russia after the war took place in Leningrad in September, 1922. Papers were read by the eminent surgeons Wreden, Federov, Grekoff, Spaskokutsky, and others. Some of these have been made use of in the following account.

Class of Patients.—The hard conditions of living affected mostly the city dwellers and the intellectual classes, and the great increase in surgical patients came from these groups. The lack of leisure and rest, the disorganization of nutrition, the physical and nervous exhaustion, were expressed surgically by a complete loss of resistance to infection. In these severe circumstances surgical diseases assumed quite a new character. Ordinarily trivial complaints became chronic and serious, and diseases formerly rare appeared suddenly as epidemics. For example, there was an epidemic of purulent infections, of hernias, abdominal ptoses, varicoses, peptic ulcers, flat-foot, and necroses. On the other hand, the hospital register showed a decrease of cancer, erysipelas, and acute peritonitis, and a marked decrease of all kinds of appendicitis. The decrease in the first three diseases mentioned was probably only apparent, as during the bad conditions these patients died off too rapidly to reach the hospitals. The opinion is, however, that appendicitis underwent an absolute great decrease. The lack of abundant food may have played a part in this decrease.

Cachexia.—Beginning with 1917 there was an unexplainable and rapid emaciation, especially in the educated classes, which suggested a developing cancer or diabetes. Later appeared hunger oedema, which passed into a peculiar state of cachexia with atrophy of the tissues. Premature senility occurred in numbers of the young and the middle-aged, and it was accompanied by an enormous increase of the senile diseases—arterio-sclerosis, angina pectoris, apoplexy, gangrene of the extremities, etc. Grekoff says:

> "The course of ordinary surgical diseases became so unusual that a surgeon of the old school, having been out of Russia, would be puzzled and have to learn anew, and to change radically the routine, methods of treatment, indications for operation, and his point of view of surgical pathology."

Normal Patients.—In spite of the conditions it was noticed that there was a small contingent of "normal" patients, who were well nourished and endured happily the most complicated operations, and whose wounds healed normally. These were usually peasants from villages which had not been affected by famine.

Cause and Variety of Infections.—The enormous increase of surgical infections can be attributed to two main factors: first, the abundance of dirt in the hospitals and the lack of means of cleanliness of the patient and of disinfection (soap, hot water, etc); secondly, the lowered resistance of the patient. In such an environment the most virulent infections resulted from the most trivial circumstances, such as slight scratches, hangnails, burns, stitches, chilblains, corns, lice, and insect bites. Cutaneous infections were also greatly increased (scabies, eczema, skin necroses, ulcers, furuncles, and carbuncles). There was an increased tendency to bedsores owing to the general emaciation. Dr. Grekoff states that he saw more paronychia in 1917-18 than in several decades of his preceding surgical practice. Dry gangrene of the finger-tips was not rare. Purulent tendo-vaginitis took a severe course and had a tendency to become an intramuscular phlegmon, and to be accompanied by extensive necrosis of subcutaneous tissue, skin, tendons, and muscles. These infections were said to be made worse by incisions, as an extensive necrosis spread rapidly from the wound edges to healthy skin areas; sacrifice of the entire limb was usually necessary to prevent death from sepsis.

Other Rare Infections.—Various affections of the vascular and lymphatic systems were seen in increasing numbers. The increase in arterio-sclerosis will be described under "Internal Diseases." There were more varicosities (resulting from the continual standing in line for food), thrombophlebitis, lymphangitis, lymphadenitis. The latter appeared almost as an epidemic; sometimes symmetrical glands were affected, and the surgeons became acquainted with glands the location of which was formerly unknown except to anatomists. Other rare infections which became common were: thyroiditis (purulent), idiopathic purulent parotitis, Mikulicz's disease (seven cases at the Obookoff Hospital in three years, against two for several preceding decades), purulent otitis, purulent perichondritis, inguinal buboes. Gangrene was frequent—not only on the tips of the extremities following typhus, but, without apparent cause except undernutrition, on the tip of the nose, the external ears, the laryngeal and costal cartilages, and in the lungs.

Orthopaedic.—Grekoff reports three cases in which he observed absorption of bone (caused by famine?). Corns and callous formations were greatly increased, as were also hydromas on the forearms. Pes planus was much more common than formerly. The fact that no great addition of surgical tuberculosis was noted may have been due to the rapid dying off of all tuberculous patients.

Hernias and Prolapses.—Hernias, prolapses, and abdominal ptoses were enormously increased, as a result of the hard physical labour, the loss of fat, and the weakening of muscles and aponeuroses. Every variety of hernia occurred in the young which was ordinarily found only in the aged, and the majority of all surgical patients, regardless of the chief ailment, had one or more hernias (Grekoff, Shamoff).* Strangulation of hernias was frequently brought about by the great increase in coprostasis and meteorism, and operations could rarely be performed on account of the condition of the patient. Although the frequency of haemorrhoids was lessened, the number of cases of prolapsed haemorrhoids was relatively increased. Prolapse of the rectum and uterus was common.

Digestive Organs.

Maxillary osteomyelitis took a more severe turn than usual, and was not infrequently accompanied by fatal Ludwig's angina. Most of the digestive neuroses were greatly increased, such as spasmodic oesophageal stenosis simulating cancerous stenosis (the cancerous form being rare during these years), pylorospasms, cardialgia.

Gastric and Duodenal Ulcers.

Gastric and duodenal ulcers have been among the most striking and persistent of the surgical diseases. They were most prevalent in 1920-22, when a conservative estimate was that they were six times more frequent than before the war. At the present time (1926) they are said to be about twice as common as in the pre-war period (Bush and

* A case with seven hernias was reported from the Obookoff Hospital.

belongs to the Waifs and Strays Society, is staffed by the orthopaedic department of St. Thomas's Hospital and Dr. T. M. Hardy of Byfleet, who is the local medical officer. Members were shown round the hospital and visited the open-air wards, after which a clinical demonstration was given. A number of patients was exhibited, including a group of eight cases of pseudo-coxalgia with serial radiograms showing the various changes over a three-year period, and for comparison two patients with flattening of the head of the femur and cavitation of the neck. An informal discussion was kept up during the demonstration.

A MEDICAL REVIEW OF SOVIET RUSSIA.*

IV.—CHANGE IN TYPE AND INCIDENCE OF DISEASE.

BY

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PART II (*continued*).

Gynaecology and Obstetrics.

Amenorrhoea.

Amenorrhoea has been one of the chief gynaecological conditions arising from the famine. It was present in more than 50 per cent. of women and often persisted in many after a return to normal nutrition. There were no disagreeable symptoms, and many stated that they felt better when they were not menstruating. Chalatov and others stated that the amenorrhoea acted as a compensatory factor; that those in whom it was present were in better health and had a higher percentage of haemoglobin than those menstruating; and that it occurred oftener in single than in married women.[1]

Sterility.

Sterility was not affected as far as could be ascertained. The sexual libido was markedly decreased and impotentia increased as a result of the hunger, lowered metabolism, and distraction of attention. There was a relaxation of the sphincters, particularly of the bladder. Dysmenorrhoea and metrorrhagia were not affected; menorrhagia was decreased.

Abortion.

The subject of abortion is so important that some detailed statistics will be given to illustrate the effect of the legalizing of abortions. Leaving aside the moral considerations, a seeming benefit is that more people would seek reputable physicians, and that there would be fewer infections. Would this be offset by the increase in undesirable pregnancies?

The former penalty for illegal abortion was exile of the mother and doctor to Siberia. Now the law requires that practically anyone applying can have it done, but that it must be done by a licensed physician in a public hospital. It is now illegal when performed by a midwife. It is done without fee if there is a medical certificate from the family physician showing some physical indication, or if there is a certificate from the *Narkomzdrav* committee (composed of a communal doctor and workmen) saying that there is a social or financial reason. If the patient does not bring one of these certificates a fee may be accepted by the surgeon. In Moscow there are special hospitals for doing abortions, but in Leningrad they may be done in any hospital.

There has been a rapid and continual increase in abortions in all the hospitals of Leningrad in which statistics were kept. The lack of moral and legal restraint does not account entirely for these increased figures because formerly none of the abortions were registered except those done for medical indications.

Table III.—*Abortions: State Clinical and Obstetrical Hospital, Leningrad.*

Authority.	Year.	Abortions.	Ratio of Abortions to Admissions.	Mortality.
Gugenberger ...	1883-93	21	2.6%	0.0%
Viridarsky ...	1883-93	150	2.6%	0.8%
Chapin	1897-97	185	3.69%	0.0%
Jakovzev	1901-07	1,089	11.8%	1.0%
Lublichenko ...	1907-13	3,674	—	0.9%
Gepner	1912-22	4,338	22.5%	—
	1922	—	28.6%	—
	1923 (first half)	—	42.0%	18.0%

In another of the large city hospitals (Erisman) 60 per cent. of all pregnant cases entering the hospital in the first five months of 1923 came to abortion. The *Statburo* gives 6,000 as the official number of abortions done in Leningrad in 1924; in 1925 there were 11,897, in 60 per cent. of which the women were between 20 and 30 years of age. (*Krasnaya Gazeta*; April 9th, 1926.)

In spite of the facilities afforded the public in these hospitals many women continue to go to midwives, I am told, because they fear the publicity of the hospital; in fact, most of the cases that enter the hospitals enter as incomplete abortions. The Gubzdrav figures show that abortions have increased sixfold during the past four or five years.

It is impossible to say what percentage of the cases are unmarried. In the first place, a woman may now register in her maiden name; and in the second place it appears that some are married just before entering the hospital, and, owing to the freedom of the present laws, divorced when they leave. However, during the past three years both marriage and divorce laws have been more stringent. But it is stated that pregnancy in young girls has greatly increased, and that special wards have had to be opened for this group of patients.*

Dr. A. Genss, head of the department for mother and child welfare for Russia, in his book on abortions in Russia (Moscow, 1926), advances arguments for the legalizing of abortions. The system of permitting abortions in Russia succeeds, he says, better than that of forbidding them prevalent in other countries, and gives a comparison with Germany in 1924.

	Germany.	Russia.
Total number of abortions	600,000 ...	150,000
Illnesses from abortion	78,000 ...	3,000
Deaths from abortion	7,000 ...	1,000
Sepsis from abortion ...	... 10 per cent.*	... 4 per cent.†
Imprisonments (abortions)	5,000 ...	None

* Berlin. † Leningrad.

He gives as the number of abortions in New York in 1924, 130,000; in Paris, 50,000; in Berlin, 23,000; in Moscow, 8,000. The figures for Moscow in 1923 were 7,900, and for 1922 4,000, showing an increase for 1924, as do also the data for Leningrad. The proportion of illegitimate births in Leningrad for 1910-12 was 16 per cent.; in 1922, 14 per cent.; and in 1925, 17 per cent.

What has been the cause of this increase in immorality? Has it been due to a moral decay following the war and crisis through which Russia has passed, the breaking up of the home, the loosening of the hold of the Church, the utter dissolution through which everything has passed, or to the results of any specific teachings of the present régime?

Although there may have been cases where children have been wrongly instructed, I do not believe that most of the

* Previous papers on medical and scientific work in Soviet Russia by Dr. Horsley Gantt were published in the British Medical Journal in 1924: I, A Review of Medical Education in Soviet Russia, vol. i, p. 1055; II, Hospitals and Health Conditions, vol. ii, p. 336; III, Scientific Work, vol. ii, p. 533. The first part of section IV, on "Change in type and incidence of disease," was published on August 14th last, p. 303; Part II of this section was commenced last week (p. 747) and is concluded in this issue

* More than 50 per cent. of the cases in one of the largest obstetrical hospitals entered as incomplete abortions in 1923, and 18 per cent. of these were infected; 0.5 per cent. entered with perforations, and in all the obstetrical hospitals of Leningrad 0.45 per cent. of the cases entered with perforations. These perforations occur in those who attempted to abort themselves. According to Professor Stroganoff there were ten times as many infections in the aborted cases as in the normal deliveries.

One was in a physician who had a carcinoma on the index finger and an ulcer on the fourth finger of the same hand. A year ago Dr. Molotkov had cut the median nerve; fourteen days later the ulcer and the cancer disappeared, and have not returned. In the other successful case—a carcinoma of the upper lip—Dr. Grekoff cut the second branch of the trigeminal nerve close to the exit from the skull. The growth went away during the course of the following month, and has not reappeared; at the time of writing this the patient has been under observation at the Obookoff Hospital for sixteen months.

These two cases have given the method a wide publicity both in Russia and abroad, but the surgeons of Leningrad do not look upon it altogether with favour except for trophic ulcers. Professor Pavlov told me that he considered the method entirely in the experimental stage.

Anthropological Changes.

Anthropologists state that starvation is an important factor in causing degeneration. The prolonged famine and food shortage in Russia caused the following anthropological changes: a decrease in average height, and weight (up to 40 per cent.); a decrease in all dimensions of the head; a change in the facial and cranial indices; a decrease in the circumference of the chest; a decrease in Pignet's vital index. A. A. Ivanovsky, in an examination of 1,139 people, found that the skull is now longer in the antero-posterior diameter than formerly, the arms are longer, the face longer, the nose narrower, and the lips thinner. These are supposed to be a return toward the features of our primitive ancestors. Shefko reports that the number of stillbirths and monsters has increased. In an examination of a hundred skulls he found that the volume is smaller as a result of the famine, and he confirms the other findings of Ivanovsky. M. Spirtov, of the Academy of Science, Leningrad, tells me that the tissues which arise from the mesoderm in the embryo especially have shown faulty development. Ivanovsky claims that these anthropological changes will be present in the offspring as mutations and regressions, but Vishnevsky and Nikolov contend that these alterations are already showing a tendency to disappear.*

Conclusions.

This review, besides recording the effects of fighting and famine on specific diseases in Russia, shows that the record of war is written as indelibly in health statistics as in battle fatalities in regard to both present and after effects. This has been seen in most of the combatant nations of Europe, but particularly in Poland and Russia, and even in such an ordinarily well ordered country as Germany.

While most of the modifications in disease can be blamed on the war and revolution (typhus, malaria, etc.), there are some which have resulted from governmental policies—such as the disappearance of alcoholism up to 1922, changes in the incidence of abortions, and decrease of infantile mortality and of typhoid fever. The public health department is making commendable and strenuous efforts, as described in another paper, but it may find that fallen houses, grass-grown streets, and musty factories are easier to repair than diseased and crippled bodies. One must remember that the present health is more a legacy of the past (war, revolution, famine, and ignorance) than a result of present policies. If allowance can be made for the backward state of Russia before the revolution, and for the terribly disastrous events of the wars, it will be interesting to see in the future what will be the health of a nation under this new form of government,† and to judge by the morbidity rates whether the living conditions of the masses will have bettered. From the progress already made in public health work it is likely that Russian health conditions will be better in the future.

Reference.

[1] Chalatov, S. S.: *Textbook of Pathology*, Leningrad, 1925.

*I am indebted to Dr. M. Spirtov for bringing to my notice some of the above anthropological facts.

† One cannot, of course, take morbidity and mortality rates as an exact criterion of the worth of the abstract principles of the ruling party of a nation because these principles may be strictly followed by only a small percentage of the people.

England and Wales.

Halifax Infirmary.

Sir Berkeley Moynihan, President of the Royal College of Surgeons of England, opened on October 20th a new operating theatre block at the Royal Halifax Infirmary. The erection and equipment of this extension has been made possible by a gift of £5,000 from Mr. Samuel Watkinson in memory of his parents and other relatives. The new theatre, with separate rooms for sterilizing, washing, and instruments, has been built as a complete unit independent of the existing theatre, with which, however, it is connected. The entrance lobby has an anaesthetizing room on one side, and on the other a recovery room fitted with a large cupboard for the provision of warm blankets to patients immediately after an operation. The theatre is lofty and well lit on its northern side by a studio window, with double glass to prevent condensation; a dark blind between two windows facilitates special eye and throat work. The walls of the theatre and its subsidiary rooms are covered with large vitrolite sheets, highly glazed, easily washed, and acid-proof. They are devoid of any fittings, such adjuncts as sinks, radiators, and towel rails being placed in the adjoining sink and washing room, following the practice in many new hospitals. Arrangements are made to control the heating and ventilation, air filters being provided for the removal of fog impurities, while the ventilation ensures a complete change of air every twelve to fifteen minutes without draught. The temperature is controlled by thermostats and pneumatic pressure operating steam valves. The sterilizing apparatus has a special ventilating plant to prevent free steam escaping into the general atmosphere, and the large sterilizer is hydraulically operated. The artificial lighting is provided by four ceiling lights and a central adjustable swing lamp, the light of which is controlled by numerous mirrors so as to abolish shadows. It is believed that these arrangements represent the last word in efficiency at the present time. The old theatre was constructed about thirty years ago. Sir Berkeley Moynihan, in his address, referred to the great traditions of the Royal Halifax Infirmary, and sketched the surprisingly swift advance of surgery during the last fifty years. He remarked that the longest journey the surgeon had ever taken was the little inch of space between the skin and the heart, which had occupied over thirty centuries. Cardiac and abdominal surgery was almost inconceivable fifty years ago. The credit for this advance must be attributed in large measure to the brilliant work of Lister, who was the greatest material benefactor the world had ever known. Surgical theatres and schools of medicine corresponded to the temples of ancient days, in which the physical and spiritual welfare were furthered simultaneously. The theatre was no longer a place of suffering, but rather a temple of science, and in it devotion, reverence, and compassion were exercised by men who felt themselves to be high priests in the service of humanity.

A Yorkshire Benevolent Society.

The eighteenth annual meeting of the Medical Benevolent Society for the North and East Ridings of Yorkshire and the City of York was held at York on September 25th. The reports of the secretary and the treasurer were adopted. The financial statement showed that there was a satisfactory balance in hand, and the trustees were directed to make a further investment from the funds of the society. The objects of the society are to give assistance to its members or their families where it may be needed owing to illness or other disability or death. It is felt that the work of the society is not sufficiently known amongst the profession, and steps are being taken to bring its claims before all practitioners in its district; it is hoped there will be an increase of the support it receives. The honorary secretary is Dr. Henry J. Mackenzie (254, Bishopthorpe Road, York).

London Hospital Old Students' Dinner.

The annual dinner of the London Hospital was held at the Trocadero Restaurant on October 21st. Dr. Russell Andrews was in the chair, and 225 old students of the hospital

Wreden). The greatest increase came about one or two years after the worst years, suggesting that this time was required for the development of the ulcer to the point of producing critical symptoms; a good many of the patients referred the beginning of their symptoms to 1918-19.

Two main factors have been mentioned to account for the increase: first, the rough, indigestible, and irritating character of the food (as described above); and secondly, the neuropathic experiences through which the population passed. This nervous influence, according to Grekoff and some others, exerted the greatest etiological force. In the first place, the ulcers occurred at about the same time that the neuroses occurred in greatest number; and secondly, ulcers often were noted from those villages where there was no acute famine, and in patients who were better nourished than the average. Patients with ulcer often showed marked neurasthenic symptoms, and gave in their history neurotic traumata, such as destruction of property, loss of kinsmen, etc. (Grekoff). Besides the general nervous influence, it has been suggested that there is a direct nervous or trophic disturbance due to the irritation of the sympathetic nerve in the case of duodenal ulcer, and of the vagus in the case of gastric ulcer. Spaskokutsky and Kraus of Saratov, however, have done experimental work during the last three years showing that mechanical injury produces ulcer (personal communication). Probably both the nervous and mechanical factors played a part.

Treatment.

Dietetic treatment was out of the question, and therefore the only relief for these patients was surgical. Gastro-enterostomy performed during this period often resulted in a jejunal ulcer or an enlargement of the original ulcer, and some form of pyloroplasty was found to be most efficacious.

Experimental Gastro-enterostomy. — Recently gastro-enterostomy experiments have been performed in Professor Pavlov's laboratory by Fursikov and Brestkin. The miniature stomach of Pavlov was made in three healthy dogs, and the juice found to be normal. Three months later gastro-enterostomy was performed, after which the acidity was markedly higher and remained high for three or four months. Then a second operation was done to break the gastro-enterostomy. In a short while the acidity in all three dogs returned to normal, and the unfavourable symptoms which had been noted when the gastro-enterostomy was present disappeared. (Personal communication of this unpublished work by the courtesy of Dr. Fursikov.)*

Dilatation and Obstructions.—The impaired nutrition and lack of neuro-muscular tone increased the frequency of acute dilatation of the stomach, and of intestinal obstructions (chiefly dynamic, though also mechanical). Impaction of faeces due to weak peristalsis was often a cause of obstruction. Ulcerative colitis and perityphlitis occurred. Infiltrations formerly easily dissolved became indolent.

Prognosis.

Owing to the reduction of the materials and of the staff, as well as the inability of the patients to endure operation, only the most urgent cases were attempted. If the patient did not die on the table he usually succumbed to post-operative pneumonia, heart failure, or sepsis. Surgical wounds required weeks and months to heal instead of days. It was the rule for them to become oedematous or infected, and the starting point of an extensive necrosis or gangrene, or to come apart on the slightest exertion. The cold of the operating room appeared not to be as dangerous as supposed. Grekoff states that he performed gastro-enterostomies when the temperature of the room was only 6° C., and that he never noticed shock or other complications although the intestines became rapidly cold.

Amputations.

The following table from the Obookoff Hospital shows the decrease in the total number of operations, a parallel decrease in operations for a comparatively trivial ailment like hernia (although the number of hernias entering the hospital was greatly increased), and the increase in the percentage of amputations which had to be done to save the patient from death from a spreading infection.

TABLE IV.

	1913.	1918.	1919.
Total number of operations	2,085	987	491
Percentage of surgical patients operated on for hernia	7.2	3.7	6.2
Amputations (percentage of total number of operations)	2.5	5.0	12.0
Amputations (percentage of total number of all hospital patients)	0.5	1.3	2.0

Mortality.

The increase in mortality of surgical diseases is shown in the following table.

TABLE V.

	1913.	1914.	1917.	1918.	1919.
Mortality (per cent.) of:					
Surgical patients	3.8	—	7.9	11.1	13.0
Furunculosis...	—	4.0	7.0	29.8	—
Phlegmonous infections	—	4.6	6.6	21.6	—
Ulcers	—	0.6	6.5	35.5	—
Gangrene	—	17.8	32.5	23.2	—

The figures for surgical patients are those of Professor Manilоff; the others are from Professor Ponomareff. The decrease in the mortality of gangrene for 1918 resulted from the increase in the number of amputations.

Dr. N. S. Zvonitsky of the Narkomzdrav tells me that the deaths from cancer have increased from an average of about 90 per 100,000 population before the war to about 103 in 1919-24 in Leningrad, as compared with an increase in London from 85 in 1890-1910 to 94 in 1910-20; and with an increase in Berlin from 69 in 1881-85 to 153 in 1916-20.

Nerve Section for Trophic Ulcers and Cancer.

I obtained from Dr. R. R. Wreden, one of the leading Russian surgeons, the following account of the method of treating ulcer and cancer by the resection of nerves.

Ulcers.—Trophic ulcers have been greatly benefited by the cutting of the nerve which supplies the region of the ulcer, according to the method of Dr. Molotkov of Leningrad, the originator of this procedure. The nerve is cut across and the cut ends are immediately sutured. This is supposed to arrest the altered metabolism or inflammation in the nerve which is believed to be causing the ulcer. The pronounced hyperaemia of the region which follows may have something to do with the healing; the temperature is higher by 1⅛ to 2½° C. One of the cases in which remarkable recovery ensued was an ulcer over the tendo Achillis, 2 cm. in diameter, which had lasted fourteen months, and which had resulted from the entangling of the sural nerve in a callous formation following the fracture of both bones of the lower leg. The ulcer failed to granulate under any form of treatment. After section of the sural nerve the ulcer disappeared in fourteen days, and did not recur. Another was a case of tuberculosis of the bones of the arch of the foot with a painful fistula opening on the sole. The fistula, which had lasted for two years, healed completely in about two weeks after the section of the tibial nerve. Many similar cases have been reported.

Cancer.—Molotkov treats cancer also as a trophic ulcer, but the results have not been nearly so successful. Professors Wreden, Grekoff, and Bush have all tried the Molotkov method of nerve section and suturing in many cancers, but they inform me that only two of a large series have shown good results. In the following cases the carcinoma was demonstrated by microscopic section, and a complete disappearance ensued upon the nerve cutting.

* Dr. J. S. Horsley has suggested to me that inasmuch as these experiments were done on normal dogs they cannot be compared too closely with operations on the patient, who is not normal.

their environment, and special breed characters that might be termed points of valuation. The co-operation of the private breeder was essential, no less than that of the manufacturing expert. Breed characters having been defined, it had become possible to discover the variations that existed and to take advantage of this to lay down standards within a breed. While it was necessary to maintain a certain number of sheep at the department in order to conduct investigations, the great bulk of the work could be done on the flocks of institutions or of private breeders, who were willing to co-operate, without materially disturbing the normal management of the flocks.

Other problems already under investigation are the developmental intersexuality in the fowl, sex link inheritance in fowls, the influence of the ductless glands upon development, the pathology of calves in the Dexter breed of cattle, the factors involved in natural incubation of chicks, and an inquiry into the problem of sterility in cattle. Work is also in progress in regard to pigs, with a view to finding out which of the problems of the pig-breeder are amenable to genetical investigation. An example of the wide scope embraced in the investigations of this department is afforded by the arrangements made with the directors of the Stirling Bacon Factory and with the Prison Commissioners for Scotland in regard to pigs raised at Barlinnie Prison near Glasgow, with a view to investigating the live weight increase in proportion to food consumption, quality and maturity in different strains, and correlating these with the question of fertility. Various other pig-breeding societies are also collaborating with the department in this investigation. Somewhat similar investigations are being made with the help of other associations into problems connected with the breeding of horses, cattle, and goats. In addition to these investigations, a grant of £200 for five years from the Carnegie Trustees has enabled a biochemical laboratory to be equipped, so that many problems which cannot be solved by purely genetical methods may be more thoroughly investigated.

The staff of the department includes Dr. Crew as director, with Mr. A. D. Buchanan Smith, M.A., M.Sc., as assistant and liaison officer between the department and the agricultural community of Scotland. Over twelve research students, from the United Kingdom and from Australia, India, and Japan, have been working in the department. Courses of lectures have been given to students of agriculture in the University, as well as to students of veterinary science and students of the post-graduate medical school. Various public lectures have been given by the director and other members of the research staff, and Dr. Crew has given to the Dundee Branch a British Medical Association lecture on the mechanism of inheritance, which was published in the British Medical Journal of August 14th, p. 285.

Motor Accidents and Hospitals.

Various voluntary hospitals have recently been concerned about the number of persons admitted to the wards owing to injuries in motor collisions. The Board of Managers of the Royal Infirmary of Edinburgh on October 4th discussed the question of making claims to meet the cost of treating such cases, and directed a return to be prepared. It was presented to the meeting on October 18th, and showed that during August 42 cases had been treated in the institution; up to September 1st these patients had received a total of 475 days' treatment. This had involved a cost for maintenance during the month of August of £184 1s. 3d., and 18 were then still under treatment. It was suggested that the attention of the insurance companies concerned should be drawn to the matter, and that they should be asked to make grants to hospitals for the treatment of such cases when disposing of their annual surplus. The principle, it was pointed out, had already been recognized by railway companies, and in one instance a substantial grant had been given in recognition of the services rendered by the infirmary following a collision. It was agreed that the matter should be raised again at the beginning of next year, and that a return of the number of cases due to motor accidents should be included in the annual report of the infirmary.

Maternity Benefit in Scotland.

One of the matters considered at the annual committee, held in Edinburgh on October 13th, of the Convention of Royal Burghs of Scotland, a body which has existed for several centuries, was the disposal of maternity benefit. A letter was read from the town clerk of Kilmarnock regarding the question of maternity benefit mandates in favour of local authorities. Sir Henry Keith, who was in the chair, said that treatment in maternity hospitals was not free, except in cases of necessity; the general practice was to charge for maintenance, and a practice had grown up with some local authorities of suggesting to the woman that she should assign her maternity benefit to the authority, in respect of the charges which otherwise would be made, as a form of security for payment of the expenses incurred. The Board of Health had originally favoured this plan, but recently some of the approved societies had objected to signing the mandate. This matter seemed to be one which could be settled by mutual co-operation and goodwill, and it might be approached either through the Association of Approved Societies or through the Association of Insurance Committees, before seeking new legislation on the matter. It seemed reasonable that since maternity benefit was given for the purpose of enabling the woman to pay for additional nourishment and expense, she should pay for the expenses incurred in the maternity hospital. It was stated by an Edinburgh representative that the matter had been before the Edinburgh Town Council recently, because a large number of the inmates in the maternity hospital of that city paid nothing, although it was believed that many of them were able to pay. The Edinburgh corporation, it was believed, would approve of legislation, and it was finally resolved to approach the Board of Health on the subject.

Ireland.

Royal Victoria Hospital, Belfast.

Mr. S. T. Irwin, F.R.C.S.I., delivered the opening address of the new session in the King Edward Memorial Hall of the Royal Victoria Hospital, Belfast, on the morning of October 19th. Mr. Mitchell, chairman of the visiting staff, presided, and there was a large attendance of the staff and of students. The lecturer pointed out the dependence of voluntary hospitals on the lay press to educate the public, and hastened to acknowledge the value of the help the hospital had always received. He recalled the days in the old Royal Hospital in Frederick Street, where he was one of the four resident pupils in 1903 when it moved to its present quarters. The old hospital was founded in the year of Waterloo and opened in 1817, and had been added to from time to time. Chiefly by the exertions of the late Lord Pirrie, and by his wife, their president, Lady Pirrie, the present hospital was founded and opened free of debt in 1903 by his late Majesty King Edward VII; the originators had the courage of their convictions, and it was planned and built on the latest designs, and had proved a great success; it had 204 beds, and His Grace the Governor would next day (October 20th) open new wards to bring it up to 435 beds. The out-patients were then 22,585; they now numbered 41,024. The visiting staff had increased from 17 to 37; the residents from 4 to 14; and the nursing staff from 60 to 150. There were now a range of laboratories, a biochemistry department, and large *x*-ray and dental departments. Some of these existed in a very immature and undeveloped condition before; now they were flourishing and in full order, and, indeed, already overworked. Mr. Irwin drew attention to the value of these later and more scientific methods of examination and of treatment in the prevention of the chronic invalidism so prevalent in former years, as well as in the reduction of mortality; this could be well illustrated by the study of the protean ravages of tubercle. The lecturer, on behalf of the staff, welcomed all students, senior and junior, to their hospital studies. The most striking difference from his student days was the large proportion of women, and he paid a graceful compliment to their hard work, steadiness, and conscientiousness, although, as an orthopaedic

were present, including Sir Neville Howse, V.C., the new Commissioner for Australia. In proposing the health of the hospital the chairman referred to the loss it had sustained by the death of Queen Alexandra, its president, whose constant and practical devotion to the hospital had been such a source of inspiration to all those engaged in its work. Queen Mary, in graciously accepting the vacant office, had given a further proof of the personal interest of the Royal Family in the hospital. The chairman spoke also with regret of the death of Mr. Mark Hovell, a member of the consulting staff, and for many years surgeon to the aural department. A reference to the long connexion of Lord Knutsford and Mr E. W. Morris with the hospital, and a tribute to the incalculable value of their services as chairman and house governor, were greeted with loud applause. During the year three generous donors had each given a sum of £10,000 to the hospital for the service of its students—Mr. Alfred Williams for a research scholarship, Viscount Bearsted for a clinical lecture theatre, and Mr. Bernhard Baron for an extension of the pathological institute. In addition an anonymous donor had given the magnificent sum of £50,000 for the establishment of a "Freedom Research Fund." In the next few months a new cardiological department, new maternity wards, and a large hostel for the residents, would add still further to the opportunities which the London Hospital offered to its students. The resignations of Mr. James Sherren, Dr. E. W. Clapham, and Dr. Probyn Williams would fill all "Londoners" with regret, mingled with gratitude for the long years of service they had devoted to the hospital. With an even more personal regret they would hear of the resignation of Miss Brain, who would always live in their affection as Sister Victor. During the year there had been many additions to the visiting staff. Mr. A. C. Perry and Mr. H. W. B. Cairns had been elected assistant surgeons, Dr. Maitland Jones had been appointed director of the new children's department, Mr. William Morris and Mr. Geoffrey Carte had been elected surgeons to the aural, Dr. O'Donovan to the skin, and Mr. Victor Lack to the gynaecological departments. The hospital continued to attract students of a high order by its great reputation as a teaching school and its incomparable clinical material. It was a remarkable testimonial that among its present students were seventeen sons and three nephews of its old graduates. Old students might look forward with confidence to the future of their hospital, just as the hospital itself relied on the affection and patriotism of its children.

New Hospital for Women in Liverpool.

The foundation stone of the Liverpool and Samaritan Hospital was laid on October 14th by Mrs. E. W. Hope, the lady mayoress. The new building will contain 120 beds, and the cost of erection will be about £120,000, of which £61,000 has already been collected; in it the work now carried on by the Hospital for Women in Shaw Street and the Samaritan Hospital for Women in Upper Parliament Street will be combined and considerable extension will be possible. At the Shaw Street hospital during 1925 there were 1,331 admissions and 1,185 operations, while at the Samaritan Hospital the corresponding figures were 485 and 410. The number of beds at the Shaw Hospital is sixty, and at the Samaritan Hospital twenty, so that in the new building the present severe demand for beds should be decreased to some extent. The hospital will be equipped on the most modern lines and the voluntary tradition of the two institutions during the last forty years will be maintained. Accommodation will be provided for a limited number of paying patients.

Vital Statistics for 1925.

We referred a fortnight ago (October 16th, p. 709) to Part I of the *Statistical Review of England and Wales for 1925* (Medical). Part II has now been issued and can be obtained (price 5s.) from H.M. Stationery Office or through any bookseller. The salient features are: The estimate of the population of England and Wales at June 30th, 1925, was 38,890,000, as against 38,746,000 in 1924, an increase of 144,000. The births registered in the year 1925 totalled 710,582, representing a rate of 18.3 per 1,000 population, which was 0.5 per 1,000 below the rate for 1924, and with the exception of the war years 1917-18 was the lowest recorded. Excluding the years 1917-19, the number of births is the lowest number registered in any year since 1861. The proportion of male to 1,000 female births was 1,045. This proportion showed a great increase during the war years and reached a maximum of 1,060 in 1919, since when with one exception it has shown a continuous decline, but is still above the proportions recorded since 1860. The deaths numbered 472,841, and corresponded to a rate of 12.2 per 1,000, the same as for the previous year, but 0.6 more than that for 1923, which was the lowest on record. The marriages registered in England and Wales during the year 1925 numbered 295,689, corresponding to a rate of 15.2 persons married per 1,000 of the population; this is a decrease of 727 over 1924. The greatest number of marriages was again registered in the third quarter of the year, being 90,314, or 30.5 per cent. of the total, whereas the number for the first quarter of the year was 46,263, or 15.3 per cent. This preference for the third quarter has been a feature of the returns since the beginning of the present century; previously the highest rate was recorded in the fourth quarter. The number of decrees nisi made absolute during the year was 2,605 (2,563 dissolution and 42 annulment), as against 2,286 in 1924 and 2,667 in 1923.

Scotland.

Animal Breeding at Edinburgh.

A gift of £10,000 by Lord Woolavington towards the endowment of a chair of animal breeding in Edinburgh has just been announced. It follows on an offer by the Rockefeller International Education Board of £30,000 for the extension of the Animal Breeding Research Department, on condition that a similar sum should be obtained in this country. A substantial grant in aid of the scheme is also expected from the Development Commission, and it is anticipated that the Department of Animal Breeding in Edinburgh University will be unique in the British Isles, and will greatly strengthen the school of agriculture as well as the scientific department of the Medical School. It is estimated that a capital sum of between £60,000 and £70,000 will be required. The history of the Edinburgh Animal Breeding Research Station is comparatively short. The suggestion that work on this line might be undertaken in Edinburgh was made by the Board of Agriculture in 1913, and Edinburgh was selected as the centre probably on account of the work which had previously been done in this direction by Professor Cossar Ewart. The activities of the committee appointed to carry out the project were suspended until 1919 on account of the war. Dr. Crew was appointed director in 1920, and in February, 1921, accommodation was provided in an old building in High School Yards, the property of the University, where a small staff of workers was gradually collected.

In the sixth annual report of the Animal Breeding Research Department of the University recently issued, Dr. F. A. E. Crew stated that the transfer of the department to the King's Buildings in December, 1924, had provided room for considerable expansion. Research was being done in regard to the value of certain recognized breeding practices. Much that the breeder had already accomplished would receive the endorsement of science, and much that was at present held to be financially profitable would be ruthlessly condemned on biological grounds. Evidence was being accumulated to show that in certain instances the breeder was seeking to fix characters which were genetically unstable and to perpetuate what was biologically unworthy. The department had been engaged for a considerable period in the study of sheep-breeding problems, particularly in connexion with the fleece of the sheep, which occupied a special place among agricultural products because it was definitely a by-product which was sold directly by the farmer. The practical values characteristic of other animal products were not so well defined in the case of the fleece. Investigation had to be made into the relations that might exist between the nature of the fleece and mutton qualities, the suitability of sheep for

It must not be supposed that I am suggesting we should all return to the diet of pre-agricultural man. I merely wish to insist that we can correct some of our notions concerning human dietetics by studying the dietetic habits of primitive peoples—above all, of the pre-agriculturists, now almost extinct. By a judicious study of the diet of primitive races now living, it is possible to construct agreeable varieties of diet which, if generally adhered to, would raise in a surprising degree the national standard of health and physique and increase to a corresponding extent the fund of human happiness.—I am, etc.,

London, W., Oct. 23rd. HARRY CAMPBELL.

MINER'S NYSTAGMUS.

SIR,—I note that in Mr. Percival's letter (October 23rd, p. 758) he states that he certainly agrees with Dr. Ingram-Johnson's theory (October 2nd, p. 615) that the position at work and consequent strain of the external muscles of the eyeball is a very important factor in the causation of miner's nystagmus. At the same time he is "not disposed to accept" my view (October 9th, p. 664) that miner's nystagmus is caused by interference with vestibular function. He omits to state, however, that before coming to this conclusion I too expressed the opinion that this interference was primarily due to the abnormal posture of the body adopted by the miner and to the prolonged or intermittent strain of the muscles of the eyeball.

The important nerve structures which would be affected in such a case would be the vestibular reflex arcs; for example, (1) that constituted by the fibres of the medial longitudinal bundle which pass from the vestibular nucleus to the oculomotor, trochlear, abducent, and accessory nuclei and to the motor cells of the cervical spinal cord. (2) The auxiliary arcs formed by the oculomotor, trochlear, abducent, accessory, and cervical spinal nerves which supply the muscles which move the head and eyes. By means of these arcs combined movements of the head and eyes (for example, nystagmus) are regulated in response to vestibular stimulation. (3) Through the vestibulo-spinal tract a reflex arc is established between the vestibular sense organ and the skeletal musculature, thus bringing the primary motor neurones under the reflex control of the vestibular apparatus. (4) Through its connexions with the vestibular nucleus, the cerebellum is able to influence the descending vestibulo-spinal tracts and the spinal neurones.

These manifold but important connexions have led me to offer what I still think is a sound physiological and anatomical explanation of how the phenomenon is evolved, and it must be admitted that the theory is more than plausible, not only in connexion with the nystagmus itself but also in connexion with the other symptoms. I can think of no other nerve structure, "deep-seated" or otherwise, whose connexions could possibly fill the bill more completely than the nucleus of Deiters.

As the incidence of miner's nystagmus seems to vary in different pits some contributory cause must be looked for. Such a cause may be bad light, or it may be toxic owing to inhalation of foul air in ill ventilated mines, or there may be an hereditary tendency, as an hereditary type of nystagmus is described which is passed from mother to child and which shows no ocular defect. Coal-mining is usually a familial occupation, so statistics of the familial incidence of miner's nystagmus would be of great interest in this connexion.

Mr. Percival's remarks concerning the types of nystagmus met with are of great clinical interest, but no matter what form the nystagmus assumes, it cannot take place without the medium of the vestibular nucleus.—I am, etc.,

Manchester, Oct. 23rd. RICHARD I. POSTON, M.D.

SANATORIUM TREATMENT.

SIR,—Dr. Stocks in his reply (October 16th, p. 713) misses the point of my criticism. He assumes that treatment is completed in the sanatorium, and that similar remedies are not employed in "non-sanatorium" cases; also that the duration of treatment in the sanatorium is a measure of the duration of sanatorium régime; none of which statements are correct. If he were trying to test the value of salicylates in rheumatic cases, would he think it fair to include patients who had only had a few doses, and to exclude others who had had a full course elsewhere?

Sanatorium treatment is not so much a remedy as a manner of life, with precautions and special remedies learnt from clinical experience, and employed as occasion arises. The same treatment is adopted outside the sanatorium by every up-to-date doctor, though under difficulties and with the omission of unattainable remedial measures. There is no clear-cut distinction between Dr. Stocks's groups.

Length of stay, taken alone, is no measure of the completeness of the course: four months may be enough for safety in one case, and utterly insufficient in another; but in every case the ultimate result will depend mainly upon the conditions of life—including such matters as good sense and perseverance of the patient, a careful wife, no long spell of unemployment, as well as many others which are not all included in Dr. Stocks's list. And the effect is cumulative. When all or most of these conditions are favourable tuberculosis officers will attempt home treatment; so that the "home treated" are likely to be a more favourable group than the "hospital and sanatorium treated." Nearly every bad case is sure to be sent for treatment to an institution at some time or other, and so to be included in Dr. Stocks's "sanatorium treated" group. Of over 2,000 sanatorium patients of whom I have notes, not more than 25 per cent. are early favourable cases.

So long as patients admitted to sanatoriums consist predominantly of those who are no longer in the most favourable stage, and treatment there is limited to the average time available for all collectively, so long will sanatorium treatment be regarded as a failure by the "man in the street." A better policy would be to treat early favourable cases for prolonged periods, or to provide sanatorium conditions for them elsewhere while at work; and to treat the less favourable cases elsewhere, in some place where elementary requirements with medical attention can be provided.—I am, etc.,

Farnham, Surrey, Oct. 19th. F. R. WALTERS.

SIR,—Accustomed as I have been to regard statisticians as men who strive after the attainment of accuracy and truth, I feel a sense of keen disappointment when I find Dr. Percy Stocks (October 16th, p. 713) resorting to a controversial device which I had associated in my mind with ordinary unscientific men. The device is that of representing me as saying what I did not say, and then replying to the misrepresentation.

I did not object "that the presence or absence of tubercle bacilli in the sputum was not made the indispensable criterion for diagnosis." Nor did I "speak of the finding of bacilli as a *sine qua non* in diagnosis." What I said was that in my experience "among patients suffering from pulmonary tuberculosis who have survived for more than six months from the time when they first came under observation, there has been an enormous difference, as regards both survival and recovery of working power, between cases in which tubercle bacilli were found in the sputum and those in which, though sought for, they were not found." Clearly this implies that I acknowledge that there are cases of pulmonary tuberculosis in which tubercle bacilli, though sought for in the sputum, are not found.

My contention still holds good that in any investigation of this kind T.B.+ and T.B.− cases should be kept quite separate, and that data which do not permit of this being done should be avoided. Among the Belfast cases on which Dr. Stocks's investigation was based, the percentage of T.B.+ cases is so small that I cannot help thinking that there was a want of thoroughness in looking for tubercle bacilli; and that, if systematic search had been made, the bacilli would have been found in a considerable, but unknown, percentage of the cases now regarded by him as T.B.−. This is on the assumption, which I have adopted throughout, that all the cases under consideration were actually cases of pulmonary tuberculosis. Take, for instance, the figure given by Dr. Stocks for female patients in the L_1 stage sent to sanatoriums of the Lancashire County Council from 1914 to 1923. Of these, he says, 29 per cent. "had the diagnosis confirmed in this way." And compare

surgeon, he could not approve the still popular high heel and narrow toe of the shoe. Dr. Morrow proposed and Mr. Howard Stevenson seconded a vote of thanks to Mr. Irwin, which was passed with acclamation.

The extensions of the Royal Victoria Hospital, Belfast, were formally opened by the Duke of Abercorn, Governor of Northern Ireland, on October 20th. There was a large and representative gathering. Viscountess Pirrie, the president of the hospital, who was in the chair, called upon Professor J. A. Lindsay, M.D., chairman of the board of management, who, after thanking the Governor of Northern Ireland for having kindly consented to inaugurate the extensions, spoke of the pleasure those present felt in seeing in the chair their honoured and beloved president, Viscountess Pirrie, to whom and to the late Lord Pirrie, the hospital owed so much, both at its inception, through its course of the last twenty-three years, and now in the large extensions. Lady Pirrie had been its constant and generous friend, ever mindful of its interests, ever sympathetic, and ever helpful. A pamphlet which had been prepared and was in the hands of those present gave full information on the work of the last three years; every department had shared in the benefits, and additional beds, a new nurses' home, three new operating rooms, and new classrooms had been provided, as well as additional accommodation in the ophthalmic, x-ray, pathological, biochemical, electrotherapeutic, and dental departments; more room for offices, kitchens, laundry, workshops was afforded, and a new gate lodge had been erected. This long list accounted for the heavy expenditure, amounting to £130,000. There was no finality in hospital construction; all recent improvements had been adopted. There was a demand to-day for paying departments in voluntary hospitals, and they were the rule in Canada and the United States. It was hoped that in the near future it would be possible to meet this want. The hospital was specially indebted to the superintendent, Colonel Forrest, who had given much practical assistance and made many valuable and fruitful suggestions. Viscountess Pirrie expressed their great pleasure in welcoming the Governor of Northern Ireland, and regret at the absence of the Duchess; she referred also to the prevision of those responsible for the hospital at its foundation, who made plans to meet the essential developments which experience and success brought; she looked upon the demand for enlargement as proof that the board and medical staff continued to hold in increasing measure the confidence and goodwill of the public; she referred to the munificent legacy of the late Mr. Musgrave, which had rendered it possible to build the new nurses' home. The Governor, in declaring the extensions open, paid a graceful tribute to the late Lord Pirrie and to Lady Pirrie. He stated his great pleasure in seeing such advances in hospital work and construction, and the generosity of the public in enabling the work to be carried on to such a successful issue. Dr. Livingstone, Vice-Chancellor of the Queen's University, proposed a vote of thanks to His Grace, and gave some figures of the medical school, and of the course of instruction in the classrooms and in the hospital. This was seconded by Mr. A. B. Mitchell, F.R.C.S.I., chairman of the medical staff, who said that these improvements enabled the staff to carry out their work with increasing accuracy and efficiency. His Grace responded. After the opening ceremony a tour of inspection was made.

Appointment of County Medical Officers of Health.

The Minister of Local Government and Public Health has addressed a circular letter to all county councils in the Irish Free State, in the course of which he states that the Executive Council has appointed Local Appointments Commissioners in pursuance of the Local Authorities (Officers and Employees) Act, 1926, and that he will not consent to any appointment made contrary to the provisions of this Act. The Minister further states that it now devolves on the county council, in conformity with the terms of Section 6 (1) of that Act, to request the Local Appointments Commissioners to recommend to them a person for appointment as county medical officer of health. Having regard to the urgent necessity for making these appointments, each county council should at the earliest possible moment take the whole question into consideration as recommended in the circular letter above mentioned, and should fix a suitable salary for the post. An application should at the same time be addressed by it to the Local Appointments Commissioners to recommend a person or persons for appointment as a county medical officer of health.

Correspondence.

A GOOD DIET AND A BAD ONE.

SIR,—It is to be hoped that doctors will take seriously to heart the lesson taught by Colonel McCarrison's paper published in the JOURNAL of October 23rd (p. 730). Of recent years we have heard much of the work done on experimental dietetics—of the calorie value of different foods, of the dangers of vitamin starvation, and the like—until we have almost come to suppose that it is impossible to construct a healthy dietary without calling the laboratory expert to our aid. No doubt experimental findings have been helpful in clarifying ideas concerning the evils attaching to many of our modern highly artificial foods, but surely the best way to arrive at the diet most suitable for man is by studying that of healthy races living under primitive conditions; by healthy races I mean such as are well set-up and conspicuously exempt from such disorders as tonsillitis, adenoids, dental caries, appendicitis, and cancer.

Colonel McCarrison cites instances of such races, and describes their diet. We seem justified in assuming that if, from early years, we all adopted a similar diet the national standard of health and physique would be greatly improved, although, owing to our necessarily more sedentary life, our standard would still fall below that of these remarkable races.

Much as we can learn from studying the diet of comparatively primitive agricultural peoples, I venture to think that we can reach an even deeper level of truth concerning human dietetics by studying the diet of the pre-agriculturists. It is possible to trace out precisely the changes which have taken place in the diet of the evolving man from the pre-human anthropoid phase to that of late pre-agricultural man. To me it does not seem possible for us to have a firm grasp of the fundamentals of human dietetics until we have learnt the lessons to be learnt from a study of man's diet at the late pre-agricultural phase; for let us not forget that civilized man is innately much the same to-day as when man first began to cultivate the soil, and that, from the standpoint of evolution, this phase was but as yesterday.

What do we find when we examine the diet of pre-agricultural man as he exists to-day? We are told that bread is the staff of life; pre-agricultural man has no cultivated cereals of any kind, and therefore no bread, whole-meal or other. We are often told of the value of sugar as a food: pre-agricultural man has no concentrated sugar save an occasional taste of wild honey. Again, we are told that non-human milk is a necessity for children after the weaning period: pre-agricultural man has never tasted milk other than his mother's, and knows nothing of butter or cheese. Needless to say, he is equally ignorant of tea, coffee, and alcohol. The cardinal truth to grasp is that, on a diet which, to all intents and purposes, contained no one of these items, man evolved from a speechless ape to a being capable of abstract reasoning, and during all that time maintained a standard of physical fitness far beyond that of civilized man of to-day.

A further important particular wherein the food of pre-agricultural man differs from that of modern man is in the comparative paucity in starch, and in the abundance of raw vegetable foods requiring vigorous mastication as compared with the richness of modern dietaries in soft starchy ingredients. Man evolved as a hunter. He subsisted on animal food supplemented by carefully selected raw vegetable foods until the discovery of cookery. With this discovery (with which, by the way, pre-agricultural man has been familiar for thousands of years) he greatly augmented his vegetable food, notably his supplies of starch.

Major Charles Stewart Lowson, Indian Medical Service (ret.), died in London on October 9th. He was born at Lille on February 19th, 1874, the son of James Lowson, and was educated at Glasgow, where he graduated M.B. and C.M. in 1896. After serving as a civil surgeon in the R.A.M.C. from October 17th, 1898, to July, 1899, he entered the I.M.S. as lieutenant on July 27th, 1899, becoming major after twelve years' service, and retiring on July 27th, 1917.

Universities and Colleges.

UNIVERSITY OF OXFORD.

AT a congregation held on October 21st the following medical degrees were conferred:

B.M.—W. H. Hudson, E. L. Fothergill.

Radcliffe Prize.

THE next award for the Radcliffe Prize will be made in March, 1927. The prize, of the value of £50, is awarded by the Master and Fellows of University College every second year for research in any branch of medical science comprised under the following heads: human anatomy, physiology, pharmacology, pathology, medicine, surgery, obstetrics, gynaecology, forensic medicine, hygiene. The prize is open to all graduates of the university who have proceeded, or are proceeding, to a medical degree in the university. Candidates must not have exceeded twelve years from the date of passing the last examination for the B.A. degree, and must not, at the date of application, be Fellows on the Foundation of Dr. John Radcliffe. Candidates must send in their memoirs to the Secretary of Faculties, at the University Registry, on or before December 1st, 1926. No memoir for which any university prize has already been awarded is admitted to competition for the Radcliffe Prize; and the prize will not be awarded more than once to the same candidate.

UNIVERSITY OF CAMBRIDGE.

THE following candidates have been approved at the examination indicated:

D.P.H. AND HY.—*Both Parts:* †I. L. Dunlop, B. Ethirajulu, *N. E. Goldsworthy, R. A. N. Henein, F. Hilmy, Bertha H. Lawler, W. Omar, H. B. Porteous, T. C. Puri, J. S. Smith, Margaret A. C. Symon, †A. W. el Wakil.

* Distinguished in Part I. † Distinguished in Part II.

UNIVERSITY OF LONDON.

DR. PERCY STOCKS, medical officer to the Galton Laboratory since 1921 and Lecturer in Vital Statistics and Epidemiology at University College, has been appointed University Reader in Medical Statistics.

At the meeting of the Senate on October 20th a resolution was adopted placing on record the Senate's high appreciation of the work accomplished by Sir Cooper Perry during his tenure of the post of Principal Officer, to which he was appointed in 1920.

UNIVERSITY COLLEGE HOSPITAL.

THREE lectures in the history of medicine, illustrated by lantern slides, will be delivered at University College Hospital Medical School, by Dr. Charles Singer, on Fridays, November 5th, 12th, and 26th, at 4.15 p.m. The first will deal with the history of scarlet fever, the second with the sweating sickness, and in the third Dr. Singer will discuss some points in the history of hygiene. The lectures are open to all medical students of the University of London.

UNIVERSITY OF EDINBURGH.

A GRADUATION ceremonial was held in the Upper Library Hall on October 23rd, when the following degrees were conferred:

M.B., CH.B.—A. I. Barron, O. D. Beetham, H. Caplan, C. W. Clayson, B. G. T. Elmes, W. A. Erskine, A. T. Forbes, W. G. Hardie, J. D. Horsburgh, W. D. Jackson, J. M'L. Johnston, J. J. Mason, D. O. Peters, G. Phillips, E. M. Robertson, P. M. Scott, P. Seager, E. M. Sewell, H. Somerville.

D.P.H.—F. Allardice, J. C. B. Craig, A. I. Messer, Captain J. B. de W. Moloney, O.B.E., I.M.S., A. C. Murray, Agnes F. Turner.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

CALENDAR FOR 1926-27.

THE College *Calendar* for the current year has been issued. It includes, as usual, a report of the proceedings of Council during the past twelve months, together with lists of officers, fellows, members, and diplomates, and the customary historical and official information. In the period under review 68 diplomas of fellowship were issued, including 2 to medical women; 768 diplomas of membership, including 144 to women; and 202 licences in dental surgery, including 9 to women. The following diplomas were granted jointly with the Royal College of Physicians: Public Health, 32; Tropical Medicine and Hygiene, 52; Ophthalmic Medicine and Surgery, 51; Psychological Medicine, 18; Laryngology and Otology, 15. In compliance with a request from the British Dental Association, the Council decided to institute a gown for licentiates in dental surgery.

The subject of the Jacksonian Prize for 1927 is "The Pathology, Diagnosis, and Treatment of Bronchiectasis and Abscess of the Lung." No essays were received in competition for the prize in 1925.

The Supplemental Charter in the form prayed for by the College was approved by the King in Council on July 26th, 1926. In order to carry out the provisions of the new Charter alterations will be required in certain by-laws, and a committee has been appointed to consider and report to the Council on the proposed changes.

The financial report states that the income of the College, exclusive of income from Trust Funds, amounted to £43,630, or £4,397 less than in the previous year. The decrease is mainly accounted for by a falling off in fees for the Conjoint Diploma and for the L.D.S. The total expenditure amounted to £36,123, or £5,214 less than in the previous year; of this decrease £2,362 was in respect of examination expenses. The balance on the revenue account amounted to £7,507, or £817 more than the sum realized in the previous year. While the net result of the current year is not likely to be so favourable, there is reason to expect a substantial balance to the good.

The Conservator's report records the appointment of Mr. Cecil F. Beadles as pathological curator in succession to the late Professor S. G. Shattock. Much progress was made in the revision of the collections illustrating the injuries and diseases of special systems and organs of the body; also in the re-cataloguing of specimens illustrating special pathology, and in the cataloguing of the Army Medical Collection now almost completed. Mr. Alban Doran completed his task of preparing a descriptive catalogue of the collection of surgical and other instruments, and the labelling and arrangement of specimens has been greatly improved under the guidance of Mr. C. J. S. Thompson. The scheme for extending the odontological collection, under the honorary curatorship of Sir Frank Colyer, is now on the point of completion. During the period under review more than 11,000 students and visitors used the Museum. The number of readers in the library was 6,350, and the Librarian in his report states that the supply of books and periodicals was well kept up during the year, works bearing on surgery and the contents of the Museum being chiefly provided. A useful addition to the *Calendar* is an inset plan of the floor of the library, indicating the position of periodicals and works of reference.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

AT the meeting of the Royal College of Surgeons of Edinburgh, held on October 20th, Dr. Arthur Logan Turner was re-elected President for the ensuing year, Sir David Wallace, C.M.G., D.L., Vice-President, and Mr. Alexander Miles, LL.D., F.R.C.S.E., Secretary and Treasurer.

The following thirty-six successful candidates out of eighty-three entered, having passed the requisite examinations, were admitted Fellows:

A. W. Allum, R. Armstrong, W. E. Barnie-Adshead, K. D. Bhave, G. S. A. Bishop, A. Callam, R. E. D. Cargill, J. R. Cornish, D. R. Cramb, A. Gillies, K. H. Gillison, Major W. T. Graham, R.A.M.C., R. J. B. Hall, H. A. H. Harris, C. V. Krishnaswami, G. E. Larke, E. G. Lynch, C. S. Macdougall, W. B. McKelvie, Surgeon Commander J. A. Maxwell, R.N., B. Moore, H. W. Nash, R. W. Payne, J. H. Pilkey, J. L. R. Plimmer, W. J. Robertson, P. Roux, J. Scott, T. Sprunt, J. P. Stewart, S. H. Tan, P. A. Treahy, I. A. Tumarkin, J. R. Wells, T. A. Weston, L. M. Zinck.

CONJOINT BOARD IN SCOTLAND.

THE following candidates have been approved at the examination indicated:

FINAL EXAMINATION.—*Medicine:* D. J. McKenna, R. A. Paton, D. Ross, E. P. Kelly, S. P. B. Gunawardena, B. A. Van der Gert, S. A. Gunawardana, E. A. Y. MacKeown, P. J. Bourke. *Surgery:* A. S. Gordon, J. G. Buchanan, A. Kouchouk, S. R. Carthegasam, A. R. Cowan. *Midwifery:* J. D. Cooper, D. F. Jayamaha, K. Dhar, R. A. Paton, S. Caller, D. Ross, A. B. Gilston, Lucy W. MacDougall, Elizabeth Bell, B. A. Van der Gert, S. A. Gunawardana, A. Kouchouk, H. T. J. Abeyesundere, L. M. de Silva, P. J. Bourke, S. R. Carthegasam, J. E. Mulholland, K. Palit, A. R. Cowan. *Medical Jurisprudence:* H. C. Duncan, D. F. Jayamaha, A. Lipschitz, J. T. F. Pearse, W. Campbell, M. Clayton-Mitchell, W. Ainslie, C. E. Vas, S. Caller, R. R. MacGibbon, Mary E. J. Magee, L. M. Green.

Of ninety-seven candidates entered the following, having passed the Final Examination, were admitted L.R.C.P.E., L.R.C.S.E., L.R.F.P. and S.G.:

W. G. H. Allen, O. D. Beetham, P. R. C. Peterson, N. M. Eadie, A. G. Farquharson, A. E. F. L. Forbes, W. L. G. Jewitt, S. A. B. Hosang, J. A. Mains, T. A. P. Wynter, D. Zimmerman, J. G. Currie, K. M. B. Swami, G. M. Fox, R. D. Kerr, J. V. O'K. Murphy, B. W. Perera, C. Gurusamy, H. B. Martin, D. B. J. de Silva, H. S. Kent, R. B. Werden, M. B. Stungo, B. S. Ellis, J. Hendry, A. S. Pool, J. J. S. F. e Souza, C. H. A. S. B. Panlickpulle, S. W. Charles, A. W. Scott.

D.P.H.—Jessie G. Service, G. J. Bastible, C. L. Pieters, R. Cruickshank, Flora MacDonald, R. S. Begbie, A. Lundie, R. Levinson, Alexandra M. MacCormick, Ruth M. Allinson. *Part I:* G. M. Millar, Lillias E. B. Buchanan, J. W. Starkey, C. K. Robertson, Jean R. Mason, Philomena R. Whitaker, J. Douglas.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have passed in the subjects indicated:

SURGERY.—H. J. Fordham, R. C. Glover, W. Johnson, R. I. Richards, H. Rundstrom.

MEDICINE.—A. Heukamp, W. Howard, T. W. Riseley, W. D. Williams.

FORENSIC MEDICINE.—J. R. S. Bowker, A. Heukamp, W. E. Ivers, S. Jenkinson, T. W. Riseley, V. K. Samy, W. D. Williams, R. W. Wood.

MIDWIFERY.—H. M. de Hartog, B. D. Jain, A. W. Marsden, C. E. Nicholas, J. Pattis, D. K. Reynolds, E. H. Waller, W. D. Williams.

The diploma of the Society has been granted to Messrs. R. C. Glover, A. Heukamp, W. Johnson, C. E. Nicholas, J. Pattis, and R. I. Richards.

this with 4.2, the corresponding percentage in the Belfast cases. Again, taking all the county Down cases diagnosed by my assistants and myself as pulmonary tuberculosis from 1913 to 1924, tubercle bacilli were found in the sputum in 62.2 per cent. The percentage varied from year to year; the highest, 77.3 per cent., being the 1917 figure; and the lowest, 53.6 per cent., the 1920 figure. The corresponding figure for the Belfast cases used in Dr. Stocks's investigation was about 10 per cent.

This uncertainty as to the proportion of T.B.+ cases in each of the subgroups made by Dr. Stocks from the Belfast data is what prevents me from having any confidence in the conclusions based on these data.—I am, etc.,

Knock, Belfast, Oct. 18th. JOHN R. GILLESPIE.

CONTAGIOUS BOVINE ABORTION AND UNDULANT FEVER.

SIR,—Owing to absence from London, my attention has only now been drawn to an article in your issue of August 21st (p. 353). In it I am credited with finding two cases of undulant fever in England in people who had never left the country. This is an error. My work consisted in showing that the milk and blood serum of some London cows contained agglutinins for the *Micrococcus melitensis*.[1] This was one of the first links in the chain of evidence that was gradually built up to show the close relationship between the organisms of bovine abortion and of undulant fever in man.—I am, etc.,

J. C. KENNEDY,
London, S.W.1, Oct. 22nd. Colonel, R.A.M.C.

Medico-Legal.

A MEDICATED WINE.

IN a Divisional Court of the King's Bench Division, on October 19th, the Lord Chief Justice, and Salter and Talbot, JJ., upheld a decision of the Brighton justices that "Wincarnis with quinine" was intoxicating liquor within the meaning of Section 65 of the Licensing (Consolidation) Act, 1910, and that it was an offence to sell it without a justices' licence.

The question whether "Wincarnis with quinine" was an intoxicating liquor or a patent medicine arose on a case stated by the Brighton justices. The appellant, H. J. Sharp, a chemist and druggist of Edward Street, Brighton, had been convicted on an information preferred by a police superintendent of selling by retail, on January 27th, 1926, certain intoxicating liquor—namely, wine known as "Wincarnis"—he not then being the holder of a justices' licence, and had been find £1, *plus* the cost of the analyst's fee.

Case Stated by Brighton Justices.

The case stated that the appellant was the holder of an excise licence to sell patent medicines. A police constable a day or two before January 27th entered the appellant's shop and asked for a bottle of "Wincarnis," and was told that it was not stocked, being referred to a wine merchant. On January 27th, however, the appellant sold to this policeman a bottle of "Wincarnis with quinine" for 3s., several bottles being displayed in the shop. The wrapper and bottle each had three labels containing the following words: "made with choice wine," "contains one grain of quinine to the ounce to meet the requirements of the Board of Inland Revenue," "contains 28 per cent. of proof spirit," "strongly recommended by the medical faculty," "dose—one tablespoonful to two tablespoonfuls may be taken three times a day," "bottle not to be shaken as there is occasionally a little sediment from the wine after bottling." On the wrapper was an excise label showing that a medicine stamp duty of 6d. had been paid on the contents. The liquid was found on analysis to contain 27.99 per cent. proof spirit (equivalent to 13.99 per cent. of alcohol) and 1.2 grains of quinine per fluid ounce. The justices found that the liquid in the bottle was an intoxicating liquor, was medicated, and tasted of quinine; that according to the standard of quinine wine in the *British Pharmacopoeia* a mixture containing one grain or more of quinine to the fluid ounce was considered a medicine; that sherry was also contained in the *Pharmacopoeia*; that a good port wine contained 30 per cent. of proof spirit; that the dose of quinine as prescribed by the *Pharmacopoeia* was from one to ten grains; that with a full dose of ten grains half a pint of the liquid would have to be taken.

The appellant's contention was that "Wincarnis with quinine" was not an intoxicating liquor within the meaning of the Licensing Acts, whilst the respondent's contention was that the labels on the wrapper and bottle were prima-facie evidence that the liquid was made with wine, that no evidence was called to rebut it, and that it was intoxicating liquor within the meaning of Section 65 of the Licensing (Consolidation) Act, 1910. The justices found that the liquid sold was wine, and convicted the appellant.

Mr. Roland Oliver, K.C., and Mr. Llewellin appeared for the appellant; Mr. E. J. Rimmer appeared for the respondent.

[1] *Journal of the R.A.M.C.*, January, 1914.

The Appellant's Case.

Mr. Oliver said that if the conviction were right it would be necessary for every chemist and druggist who sold that or similar medicated wines to hold some sort of licence to enable them to do so. The Excise authorities had never taken any action on the matter. This prosecution was taken by the police. He agreed that before quinine was added to the liquid it was probably some sort of port, but as it stood it was not the sort of stuff people would want to drink as a beverage. Counsel quoted Section 110 and Section 111 (2) of the Licensing (Consolidation) Act, 1910, and Section 3 of the Spirits Act, 1886, and argued therefrom that if he could show that "Wincarnis with quinine" was not a wine, it could only come under the definition of "spirituous liquor," and would be exempt as "spirits made up in medicine." One must have regard to the two objects of the licensing law: the due preservation of public order, and the safeguarding of the revenue. The passage in *Paterson's Licensing Acts* saying that a wine licence was required for the sale of medicated wines was, in his submission, wholly wrong. He relied on the finding of the justices that it tasted of quinine, and cited *Attorney-General v. Bailey* (17 L.J., Ex. 9.)

The Respondent's Case.

Mr. Rimmer argued that the fact that it was not the practice of the Excise authorities to require chemists to take out an excise licence for selling that preparation was a purely department rule not in any way binding on the prosecution. It was immaterial that quinine wine was mentioned in the *British Pharmacopoeia*, so was sherry, and it could hardly be argued that sherry was not a wine. The admixture of non-alcoholic liquor with a wine did not make it cease to be a wine and become a spirit. If that were so, a person who had a wine licence could sell port but could not sell "Wincarnis with quinine," or could sell claret but not claret cup. The distinction between "wine" and "spirits" contemplated by the Act was that which the man in the street would make. "Spirits" implied distillation and "wine" fermentation without distillation. If before the admixture it was a fermented liquor in the sense of being wine, it remained after the admixture a fermented and not a spirituous liquor.

Counsel was stopped by the court.

Judgement Dismissing Appeal.

The Lord Chief Justice, dismissing the appeal, in his judgement, said the only question for the court was whether the liquid that was being sold was wine. If it was, then its sale by retail without a justices' licence was illegal. It was possible to conceive a problem not medical or chemical, but of a commercial kind—namely, how to command a large sale of inferior port wine at a comparatively high price with the help of a great number of persons who do not commonly sell wine, and especially a great number of purchasers who might hesitate to buy or drink wine if it were offered to them as such. The answer to that problem might conceivably be the putting of a little medicine in wine and selling it in chemists' shops That might be a matter which deserved the attention of the Legislature. Upon the facts of the case, how could it be said that there was no evidence upon which the justices could hold as they did? It might well be that the commercial problem was how to put enough medicine into wine to make it cease to be wine for the purposes of argument, without putting in so much medicine as to make it unpalatable to men, women, and children, and especially women who on being told they suffered from nervous diseases were not at all disinclined to find a plausible excuse for drinking port at 11 o'clock in the morning. His lordship thought there was abundant material upon which the justices could find as they did.

Salter and Talbot, JJ., concurred.

The Services.

NAVAL MEDICAL COMPASSIONATE FUND.

AT the quarterly meeting of the directors of the Naval Medical Compassionate Fund, held on October 19th, when Surgeon Vice-Admiral Sir Joseph Chambers, K.C.B., C.M.G., Medical Director-General of the Navy, was in the chair, the sum of £114 was distributed among the several applicants.

DEATHS IN THE SERVICES.

WE much regret to record that among the names of those missing from H.M.S. *Valerian*, which foundered in a hurricane, is that of Surgeon Lieutenant Colin Joiner, R.N. He graduated M.B., Ch.B.Aberd. in 1924, received his commission on September 1st, 1924, and was appointed to the *Valerian* on April 29th, 1926. He was a member of the British Medical Association.

Lieut.-Colonel Sidney Herbert Carter, R.A.M.C.(ret.), died suddenly in a nursing home at Brighton on October 15th. He was born in county Antrim on March 14th, 1848, and was educated at Trinity College, Dublin, where he graduated B.A. and M.D. in 1870. He entered the R.A.M.C. as surgeon on September 30th, 1874, became surgeon lieutenant-colonel after twenty years' service, and brigade surgeon lieutenant-colonel in November, 1897. He retired in January, 1903. While serving in South Africa, as principal medical officer of a division, he was granted the local rank of colonel from April 15th, 1900. He served in the Afghan war of 1878-80, when he was present at the battle of Ahmed Khel, and received the medal with a clasp; in the Egyptian war of 1882, at the battle of Tel-el-Kebir (medal with clasp, and Khedive's bronze star); in the Tirah campaign on the North-West Frontier of India, in 1897-98, on the lines of communication (frontier medal with two clasps); and in South Africa, 1899-1901, when he took part in the defence of Ladysmith, was twice mentioned in dispatches, and gained the Queen's medal with five clasps.

Medical News.

THE Lloyd Roberts lecture for 1926, at the Manchester Royal Infirmary, will be delivered by Dr. W. E. Gye on Tuesday, November 9th, at 4.15 p.m. The subject will be "An outline of the knowledge gained by the experimental study of cancer."

AT a meeting of the Medical Officers of Schools Association, to be held at 11, Chandos Street, Cavendish Square, W.1, on Friday, November 12th, at 5 p.m., Dr. A. I. Simey will introduce a discussion on suggestions as to the modification of the rules usually observed in the management of infectious diseases in boarding schools. (Tea 4.30 p.m.) All interested in the subject are cordially invited to attend.

A MEETING of the Medical Prayer Union will be held, by kind invitation of Dame Mary Scharlieb, M.D., M.S., at 71, Harley Street, on Friday, November 5th, at 5.30 p.m., when an address will be given by the Rev. Hubert L. Simpson, M.A., on "The doctor and religion." An intimation of intention to be present will be welcomed by the honorary secretary, Dr. Tom Jays, Livingstone College, E.10.

AT the Post-Graduate Hostel, Imperial Hotel, Russell Square, W.C.1, on Monday next, November 1st, at 9 p.m., Sir James Dundas-Grant will read a paper on some clinical experiences, and on Friday, at the same hour, Dr. E. I. Spriggs will discuss diverticulosis. All medical practitioners are welcome. Dinner will be served at 8 p.m. (price 5s.) and coffee and biscuits at 10 p.m. (price 6d.).

THE Fellowship of Medicine announces that on November 4th, at 5 p.m., at the house of the Medical Society of London, 11, Chandos Street, W., Mr. C. Max Page will continue the series of lectures on surgical and medical emergencies by speaking on the treatment of fractures. On the same day, at 1 p.m., Mr. M. L. Hepburn will give a demonstration in clinical ophthalmology at the Royal London Ophthalmic Hospital. At the Royal National Orthopaedic Hospital on November 1st Mr. E. Laming Evans will give a special afternoon demonstration, starting at 3 p.m. All the above are free to members of the medical profession. On November 1st a practitioners' course in general medicine and surgery will start at the Hampstead General Hospital, with daily sessions from 4.30 to 6 p.m.; the course will last for two weeks, and a clinical demonstration will be given for the first three-quarters of an hour, followed by a lecture. On the same day a course in venereal diseases will begin at the London Lock Hospital, with clinical work each day from 1 p.m. onwards; four or five lectures will be given weekly during the four weeks of the course. At the Royal Waterloo Hospital for Children and Women a three weeks' course in medicine, surgery, and gynaecology, occupying every afternoon and some mornings, will start on November 15th, and will include lectures and clinical demonstrations on diseases of the nervous system, feeding of infants, congenital heart disease, diseases of the blood, kidneys, thyroid, joints, stomach, and intestines, with gynaecological diagnosis, consideration of the commoner gynaecological affections, ophthalmia neonatorum, and skin diseases, and modern methods of laboratory diagnosis. A course at the St. John's Hospital for Diseases of the Skin, from November 15th to December 11th, will include daily instruction in the out-patient department, and lectures on Tuesdays and Thursdays. The West End Hospital for Nervous Diseases, from November 22nd to December 18th, will hold lecture-demonstrations daily at 5 p.m. At St. Mark's Hospital, from November 22nd to 27th, there will be a course of operations, demonstrations, and lectures, and at the London Temperance Hospital, from November 29th to December 11th, a course in medicine and surgery in the late afternoons. Copies of all syllabuses, the general course programme, and the *Post-Graduate Medical Journal* may be obtained from the Secretary of the Fellowship, 1, Wimpole Street, W.1.

THE People's League of Health has arranged a series of eight lectures on "Diet: What we should eat and why," to be delivered in the lecture room of the Medical Society of London, 11, Chandos Street, Cavendish Square, W.1, commencing on Wednesday, November 3rd, at 6 p.m. The lecturers include Professors Leonard Hill, Winifred Cullis, W. E. Dixon, and Hugh Maclean, and Dr. Harry Campbell. The fee for the series will be 8s. The syllabus may be obtained from Miss Olga Nethersole, 12, Stratford Place, W.1.

A FURTHER extraordinary general meeting of the Medical Sickness, Annuity, and Life Assurance Society will be held at the offices of the company, Lincoln House, 300, High Holborn, W.C., on Monday, November 1st, at 4 p.m., for the confirmation or otherwise of the resolution approving alterations in the articles of association adopted at the meeting on October 11th.

THE Norman Lockyer lecture for 1926 will be given in the Goldsmiths' Hall on Tuesday, November 23rd next, at 4 p.m., by Mr. J. S. Huxley, Professor of Zoology and Animal Biology at King's College. Its subject will be biology and human life. Tickets can be obtained from the Secretary, British Science Guild, 6, John Street, Adelphi, London, W.C.2.

THE London Clinic of Psycho-Analysis has recently been opened for the out-patient treatment of cases found suitable for this form of therapy. Its purpose is to place a method of treatment that is lengthy and therefore usually expensive within the reach of those who cannot afford the usual or indeed any fees, and to provide opportunity for the training, under supervision, of medical students and practitioners who desire to specialize in this branch of work. The staff consists of the following honorary physicians: Drs. Ernest Jones (honorary director), Douglas Bryan, E. M. Cole, M. D. Eder, Edw. Glover, M. B. Herford, W. Inman, Sylvia M. Payne, R. M. Riggall, W. H. B. Stoddart, and John Rickman (honorary secretary). The address of the clinic is 36, Gloucester Place, W.1.

THE British Social Hygiene Council has arranged a course of lectures to teachers and those concerned with education, to be held at the College of Nursing, Henrietta Street, Cavendish Square, W.1, at 5.30 p.m. Mr. D. Ward Cutler will open the course on November 4th with a lecture on the contribution of biology to social hygiene. Dr. Feldman will describe the contribution of physiology to social hygiene on November 11th. Dr. J. A. Hadfield will discuss the contribution of psychology to social hygiene on November 18th. Dr. Mary Buchan Douie will discuss adolescent and social hygiene from the standpoint of the home on November 25th, and on December 2nd Professor Winifred Cullis will lecture on adolescent and social hygiene from the standpoint of the school. Free tickets can be obtained from the London secretary of the Council, Carteret House, Carteret Street, S.W.1.

A NATIONAL conference on milk in relation to public health will be held in the King George's Hall, Caroline Street, Great Russell Street, W.C.1, on Tuesday, November 16th. At the morning session reports will be received from public authorities on the present conditions of the milk supply, Dr. Harriette Chick will read a paper on milk in relation to public health, and Dr. W. G. Savage will open the discussion. The afternoon session will open with remarks by the Minister of Health, and consideration will be given to suggestions received by the conference committee as to steps to be taken by the public, public authorities, and the Government for the improvement of the milk supply. A general discussion will be opened by Professor H. R. Kenwood.

A QUARTERLY meeting of the Royal Medico-Psychological Association will be held on November 16th at the Horton Mental Hospital, Epsom, when it will be proposed to form a special committee on research and clinical psychiatry as a preliminary to the appointment, at the next annual meeting, of a standing research and clinical committee to consider the most profitable lines on which the matter can be pursued. It will be proposed also to ask each division to appoint a clinical committee to organize regular meetings devoted solely to the clinical aspects of psychological medicine on such lines as will encourage the attendance primarily of assistant medical officers. In the afternoon a paper and clinic on chronic epidemic encephalitis will be given by Dr. P. K. McCowan and Dr. J. S. Harris, at West Park Mental Hospital, Epsom, and a visit will be paid to the Manor Institution for Mental Defectives. On the previous day (Monday, November 15th), at 4 p.m., an address will be given at the British Medical Association House, Tavistock Square, W.C., by Dr. Alfred Adler, of Vienna, on the cause and prevention of neurosis.

AT the annual dinner of the Chelsea Clinical Society on October 26th, the president, Dr. Ernest Charles Young, took the chair, and a record attendance of members was present. The toast of "The Visitors" was proposed by Mr. Ivor Back, who coupled with the toast the names of Lord Carson, the Dean of St. Paul's, and Sir Arthur Conan Doyle. Lord Carson, in replying, spoke of his appreciation of the personal help he had received from doctors during his life, and admitted that he thought they appeared to greater advantage in the consulting room and at the bedside than in courts of law. The Dean of St. Paul's confessed to a strong sympathy with doctors, of whose services, however, he was glad that he had not had to take advantage very often. He contributed two humorous anecdotes to the gaiety of the evening. Sir Arthur Conan Doyle remarked that, although he felt somewhat of a traitor to the medical profession, having deserted it after comparatively short service, yet his professional life, though not very long, had certainly been broad, and perhaps deep. He thought he was the only representative present of the old unqualified assistant,

Obituary.

W. H. WHITE, M.D.,

Consulting Physician, Royal Hospital for Diseases of the Chest.

Dr. William Henry White, whose death occurred suddenly on October 22nd, was born at Wexford in 1849 and educated in Ireland. He graduated at Trinity College, Dublin, ultimately becoming M.R.C.P.Lond. When he came to England he practised at Westbury, Shropshire, but after a few years he found that the work of a very great and growing practice was too much for his health. After a rest he settled at 43, Weymouth Street, and for forty-five years, down to the day of his death, was seeing patients. Dr. White belonged to the old school of practitioners. Very definite in diagnosis and perhaps somewhat dogmatic, he had a great hold on his patients. His appearance was striking, and his personal magnetism as great with the poor as with the rich, largely owing to his cheerfulness and geniality. He was for many years physician to the Royal Hospital for Diseases of the Chest and to the St. Marylebone Dispensary. His treatment of disease was intensely practical; he was quick to discard useless methods. His friends will ever remember him for his charm, kindliness, and sympathy. He was a great lover of horses, for many years a familiar figure in the Row, and only a few years back did he at last give up driving his own pair on his rounds. Another favourite pastime was yachting at Falmouth and along the south coast. The death of his wife in January last, just after their golden wedding, was a terrible blow to him, from which he never recovered. He is survived by his two children, a daughter and son, Norman.

We regret to record the death of Dr. Robert Parry, a leading practitioner of Carnarvon, at the age of 71. He was a native of Merionethshire, and received his education at Owens College, Manchester, and Guy's Hospital Medical School. He obtained the diplomas of L.S.A. in 1878, M.R.C.S.Eng. in 1879, and L.R.C.P.Lond. in 1882, and graduated M.B.Lond. in 1882. In 1883 he started practice in Carnarvon, and soon afterwards began to take an active part in the public life of the district. He was for nearly forty years a member of the town council, was mayor from 1897 to 1899, and in 1921 his name was added to the roll of freemen. He had also served as chairman of the County Council and chairman of its Health Committee, and was a member of the Carnarvonshire Insurance Committee and of the Joint Sanitary Committee for the county. He was a justice of the peace for the borough and county of Carnarvon. His professional appointments include those of medical officer to the Carnarvon Union Infirmary, and surgeon to the police and to the local prison. For many years Dr. Parry had been a loyal and zealous member of the British Medical Association, and at the time of his death was a member of the North Wales Branch Council and of its Executive Committee; he was president of the North Wales Branch in 1901. He was highly esteemed by his colleagues, and his guidance in professional difficulties was much appreciated. At the funeral there was a large assembly of mourners, including representatives of all the public bodies on which Dr. Parry had served, and a great many medical men. He is survived by his widow, three sons, and two daughters; two of the sons are members of the medical profession.

Dr. Charles Clement Lapage, who was for forty-two years in practice at Nantwich, Cheshire, died on October 14th after a short illness. He was a native of Leeds, and was educated at Leeds and Magdalene College, Cambridge. He obtained the diplomas M.R.C.S.Eng. in 1876 and the L.S.A. in the next year; he graduated M.B.Cantab. in 1882, and in the same year proceeded M.D. After holding the appointment of assistant house-surgeon to the Leeds General Infirmary he commenced private practice in Nantwich, and retired in 1919. In addition to his private practice he was consulting physician to the Brine Baths Hotel, and took an active part in the voluntary medical work of the town. He was medical officer to the Red Cross detachment before the war, and served throughout it as medical officer to the Nantwich V.A.D. Hospital. Dr. Lapage was for many years a member of the British Medical Association, and he was also very active in ambulance work, being well known over the Cheshire district as an examiner and lecturer for the St. John Ambulance Brigade. He took great interest in athletics, and in his university days was prominent in many forms of sport. This interest he retained as far as possible when he went to Nantwich, where he was well known in the hunting field and as a supporter of every form of open-air life. His wife predeceased him in 1919, and he is survived by a daughter and five sons, two of whom are members of the medical profession.

The following well known foreign medical men have recently died: Dr. Kauffmann, oto-rhino-laryngologist, at Angers; Professor Max Koch, pathologist, at Berlin, aged 53; Dr. Max Howald, professor of medical jurisprudence at Berlin; and Professor E. Opitz, gynaecologist, at Freiburg.

Medical Notes in Parliament.

[From our Parliamentary Correspondent.]

Parliament reassembled on October 25th to approve the continuance of the Emergency Regulations during November. This was done after discussion. The House of Commons sat on October 25th and 26th, but its debates did not result in any new proposals for settlement of the mining dispute, although approaches were made to the Prime Minister behind the Chair. Occasion was taken during the sittings to take the opinion of the House on certain remarks made earlier in the month by Dr. Salter in a speech at a temperance society, in which he imputed inebriety to certain members of the House of Commons. A prolonged debate ensued, during the course of which Dr. Salter repeated his allegations. Veteran members testified to the much improved sobriety of the country and of the House. A motion repudiating Dr. Salter's charges was made, but an amendment was proposed to refer the matter to a Committee of Privileges; the amendment was rejected, and the original motion adopted without a division.

The House of Commons will meet again on November 9th for the ordinary business of the autumn session. The heavy work caused by the coal stoppage and the Imperial Conference has, however, disturbed the Ministerial programme, and Mr. Neville Chamberlain does not now hope to obtain this autumn a preliminary debate in the House of Commons on the bill he is preparing for the reform of the Poor Law and the abolition of boards of guardians. He may, however, issue a draft or summary of it for examination by politicians and public authorities. The hope is that the Government will make this bill a principal item in its legislative programme of next year, but the Cabinet has not decided to do so.

Outbreaks of Infantile Paralysis in England.

On October 25th, in reply to Mr. Ammon, Sir Kingsley Wood said that an outbreak of infantile paralysis occurred in Broadstairs this month. Fifty-three cases had been notified and there had been two deaths. The outbreak had been mainly restricted to private boarding schools and day schools in Broadstairs; three cases had occurred in convalescent homes. A medical officer of the Ministry of Health visited Broadstairs immediately, and had conferred with the medical officer of health and the local medical practitioners as to the administrative arrangements for dealing with the outbreak. Leaflets of advice had been issued and facilities for hospital isolation and disinfection provided. An outbreak in Leicester began at the end of July and reached its maximum in the week ending September 18th. The last case was notified on October 14th. There were altogether 73 cases, 6 of which were fatal. They occurred sporadically, all over the town. In no instance did more than one case occur in a household, and no one school was specially affected. Each case was personally investigated by the medical officer of health, who arranged for the necessary isolation and for treatment, either at the isolation hospital or the Royal Infirmary.

Mr. Ammon asked whether instructions were issued from the department, so far as Broadstairs was concerned, that all reports were to be suppressed and no information allowed to leak out. Sir Kingsley Wood said all notifications had been published in the official returns week by week; the council of Broadstairs—the proper body to make a statement—issued an official statement to the public generally.